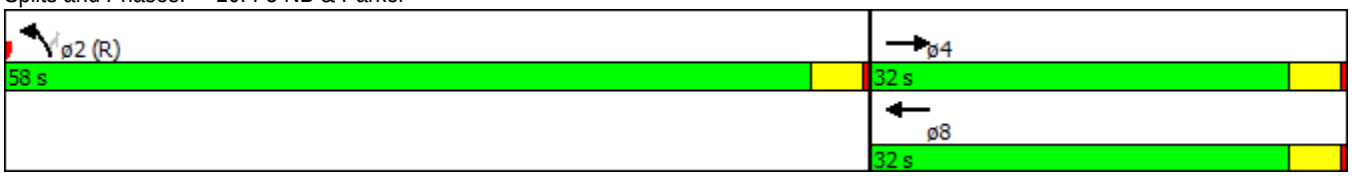
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (s)	32.0			32.0	58.0	58.0
Total Split (%)	35.6%			35.6%	64.4%	64.4%
Maximum Green (s)	28.0			28.0	54.0	54.0
Yellow Time (s)	3.5			3.5	3.5	3.5
All-Red Time (s)	0.5			0.5	0.5	0.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.0			4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			None	C-Max	C-Max
Walk Time (s)	5.0			5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	27.4			27.4	54.6	54.6
Actuated g/C Ratio	0.30			0.30	0.61	0.61
v/c Ratio	0.60			0.85	0.39	0.88
Control Delay	45.1			36.1	10.6	17.2
Queue Delay	4.5			0.0	0.0	0.0
Total Delay	49.6			36.1	10.6	17.2
LOS	D			D	B	B
Approach Delay	49.6			36.1	15.8	
Approach LOS	D			D	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 88 (98%), Referenced to phase 2:NBL and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 110.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: I-5 NB & Parker



APPENDIX C-2

LOS ANGELES COUNTY PUBLIC WORKS DECEMBER 2, 2024 APPROVAL LETTER

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

MARK PESTRELLA, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: T-4

December 2, 2024

Mr. Daryl Zerfass
Stantec
38 Technology Drive
Irvine, CA 92618

Dear Ms. Morris and Mr. Zerfass:

NORTHLAKE SPECIFIC PLAN
TRANSPORTATION ANALYSIS FOR CEQA – NOVEMBER 19, 2024
UNINCORPORATED CASTAIC AREA

Public Works reviewed the Transportation Impact Analysis (TIA) dated November 19, 2024, for the proposed Northlake Specific Plan Development located east of the Interstate 5 freeway and north of Lake Hughes Road in the unincorporated Castaic area.

Project Description

The project proposed the development of 1,143 single family residential units, 1,341 multi-family residential units, 345 age qualified single family residential units, and 315 affordable mixed-use housing units and 6 market-rate live-work units for a total of 3,150 residential units. The project also proposed highway commercial (e.g., retail near the highway), a middle school (as an option), private and public recreational parks, and a fire station.

Project's Transportation Impact

According to the TIA, the project would not result in new transportation impacts to the unincorporated County. We generally agree with the findings in the TIA.

If you have any questions, please contact Mr. Stephen Lamm, Traffic Safety and Mobility Division, at (626) 300-4764 or slamm@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA, P.E.
Director of Public Works



Amir S. Ibrahim, P.E., L.S.
Principal Engineer
Los Angeles County Public Works

SL:vr
SP:TSM/DOCS/STU/LTR&MEMOS/ESTU2023000255-NORTHLAKE-TIA-APPROVAL

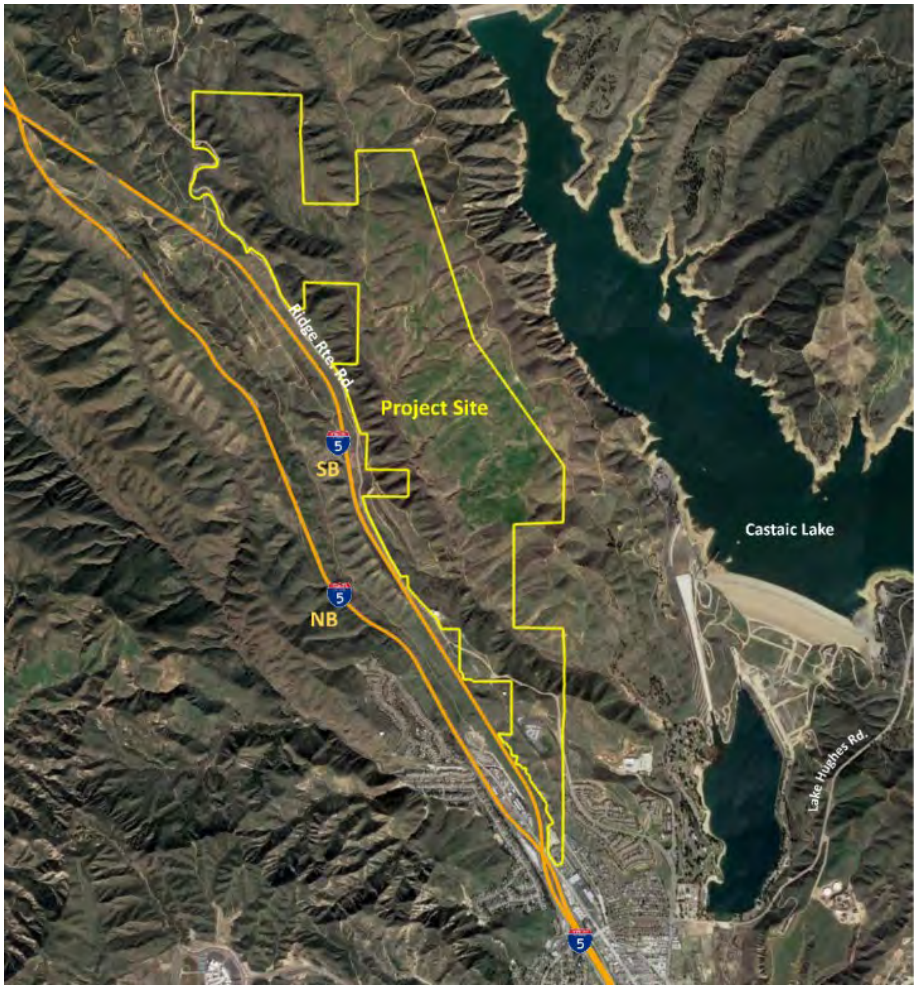
Enc.

bc: Land Development (Suarez, Lasso)

APPENDIX D-1

WILDLAND FIRE RISK REPORT, NORTHLAKE PROJECT

Wildland Fire Risk Report
NorthLake Project



Prepared for:
Northlake Associates, LLC
10250 Constellation Boulevard, STE 2750
Los Angeles, CA 90067

and

Los Angeles County Fire Department

Prepared By:

firesafe PLANNING, INC.

12/04/24

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Executive Summary

Firesafe Planning Inc. performed an assessment of risks related to wildfires (Wildland Fire Risk) in order to assess the intensity of a wildfire approaching the Project Site (See Figure 2 below). This report provides the results of that assessment and objective hazard and risk assessments which can be used to establish the community mitigations (hazard less mitigations = risk) that are equal to or greater than the hazards which would be encountered in a worst-case scenario.

The study takes into consideration existing/future vegetative interface fuels, topography, fire history and weather conditions during extreme fire conditions. The report provides results of computer calculations that measured the fire intensity, flame lengths, rate of spread, and fire travel distance (arrival times) from worst-case scenario wildfires in both the extreme (Diablo wind) and the predominant (Onshore wind) wind conditions.

The results of fire behavior calculations have been incorporated into the analysis of the interfaces of the project with adjacent wildlands and the potential ingress/egress routes used by the Project Site on a daily basis and under emergency conditions where evacuation might be possible.

The California Attorney General's "*Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act*" guidelines encompass the CEQA Appendix G, Section XX, subsection a, b, and c requirements and as this report addresses the guidelines, it addresses the Appendix G issues in the same effort.

The Project Site has three configurations (referred to as alternatives) under review for this analysis. The first is the project as previously approved (Previously Approved Project); the second, a configuration that avoids Grasshopper Creek entirely (Creek Avoidance Alternative); and the third configuration which partially avoids the Grasshopper Creek areas (Partial Creek Avoidance Alternative).

When viewed side-by-side, the differences in scope of the two alternatives are more readily visible, as shown (Figure 7, page 13). The Partial Creek Avoidance Alternative will not develop to the north as much as the other two alternatives.

This report has examined the topography (slope, aspect, elevation, location of development as it relates to the upslope and downslope areas), weather history, fire history, wildland fuels (type, configuration, continuity, and density), and current/anticipated infrastructure (roads, fuel modification, fire resources, and water distribution and storage system). The current and future (code and regulation requirements which will be in place by the time of development) regulations, codes, standards, guidelines, and recommended practices relating to wildland fire safety are also addressed. It has been assumed that this project will comply with all current and future regulations in the development of the site and the construction of the structures.

The analysis of Wildland Fire Risk starts with the review of the hazards, the likelihood of an event, and the intensity of that event which is then examined against the vulnerability (exposure and susceptibility) to provide a "level of risk". This has been accomplished using fire modeling (BehavePlus and FlamMap) software as provided by the U. S. Forest Service.

Static Modeling using BehavePlus (single site, set conditions) indicates that in a worst-case scenario (not currently present at or near the development area) a maximum flame length of 50'+/- may be possible when the fire is running upslope, in a continuous fuel bed (SCAL18 sage and buckwheat), in line with the wind, on a very dry hot day. If the fuels were to become six-foot chaparral fuel beds (not shown/achieved in historic fuel coverage data), the flame length could reach 63' (Sh5 fuel). This configuration is not present in the current (fuels prior to the Route Fire) interface and does not seem to have been present in the past in a review of aerial images over the past 30 years except on north facing slopes in small areas which are not below the development area(s) and not likely to produce a self-sustaining maximum fire output burning in equilibrium.

In a review of all flame lengths for all scenarios run in FlamMap, no cells within or adjacent to the Project Site had values greater than those for the worst-case scenario (63' flame length) in BehavePlus. Using the Minimum Travel Time feature of FlamMap, it is possible to project the time it might take for a given fire scenario to travel the distance from the origin to each of the evacuation points within the Project Site and when they might impact the Evacuation Points. These results are provided for each scenario in the appendix and summarized in the matrix (Matrix 1, page 64) in this report.

All scenarios have at least one Evac (evacuation) Point which is viable for 4 hours or more, with the exception of the Freeway Spots scenario where only 30 minutes are available before Ridge Route Road is impacted for a period of time. All of the fire scenarios are run under extreme conditions. When in alignment (wind, slope, aspect, and fuels), the rate of spread is extremely high and the fire travels large distance in a short period of time. In all scenarios, burn through of the community is not modeled or expected given the fuel modification zones, hardened structures and restrictions on vegetation which will be in place by the various codes, ordinances and standard required by the Los Angeles County Fire Department for new development within the Very High Fire Hazard Severity Zones.

The size, location and configuration of the Project Site makes it unlikely that a fire will impact the entire Project Site at a single time, but rather the fire will impact sections of the project interface over a period of time which will allow for resources to be redistributed and for evacuation opportunities after the fire front has passed a specific location. Travel within the Project Site should be viable at all times given the distance from the wildland fuels and the wildland fire protection features which will be provided (as required by the various code, ordinances and regulations).

The development will provide more water storage than is required by the fire code and will in fact, provide additional regional fire duration capacity which benefits many structures beyond the development area.

A site will be provided for a new fire station within the development. In addition, the project will pay its proportionate fees for the construction of that station which will enhance the regional fire protection already in place. With the new fire station, adequate fire resources are present to protect the development.

This report reaches the conclusion that the expected fire behavior in the interface of the NorthLake development indicates that the fire behavior could produce extreme fire behavior and as such, implementation of wildland fire protection measures will be necessary. Many of these measures are required by the State and Local fire/building regulations, fire department standards and guidelines, and by mitigations already considered and applied by the development review processes to the Previously Approved project. Fire behavior modeling suggests that there will be several hours in which to evacuate the Project Site under fire scenarios where the fire is burning into the community from an adjacent area under each of the development scenarios considered, except with the Freeway Spots scenario, where all configurations will have a period of time where Ridge Route Road is impacted for 90 minutes or more and would require sheltering in place within the development for this period. The north evacuation route would be open during that period. Where fires are initialized within the Project Site or near its boundary, the fire incident command and control will have to determine if the population will be moved or "sheltered in place".

The proposed community with its increased built-in fire protection features (defensible space, fuel modification, hardening of the structures and required maintenance), placement of the structures on the topography, overall orientation to the fuels, wind, and slope and nested (safe center) configuration would be a candidate for a "shelter in place" decision. While "shelter in place" is never a first option, history shows us that moving populations once the fire has arrived has increased risk and should not be attempted when safe alternatives exist.

The configuration of the Project Site, the placement of the structures and features on the topography and the nature of the wildland fuels surrounding the Project Site create conditions where the fire will travel at great speeds when wind, slope and fuel align but the three access points that empty onto Ridge Route Road are not impacted by fire at the same time.

The fire behavior modeling in this report with flame lengths of up to 63' under the worst-case scenario would be protected by the LACFD standards. Fuel modification is designed to reduce and change the fuel types as the combustible vegetation gets closer to the structure. As "rule of thumb" two times the maximum flame length is adequate protection from radiant heat in a hardened structure. These distances also protect from direct flame contact and convected heat. The structure hardening (includes ember intrusion projection) protects from embers and brands which may travel long distances under worst-case conditions.

With respect to the defensible space distance for the perimeter structures, the LACFD requires distances up to 200 feet of fuel modification depending on the adjacent fire potential as measured by the slope, aspect, fuel characteristics, fire history and weather data (wind, temperature and relative humidity). While the distance required in the thinning zones may be allowed to be reduced based on the level of hazard present, the zones nearest the structures are rarely reduced. In any event, LACFD's 200' fuel modification requirement more than satisfies the needed distance based on 63' flame length (126').

Additionally, the implementation of the Zone 0 (first five feet from the structure) and LACFD's decision to make the fuel modification zone on all sides of the structure and not just the wildland interface will only enhance the already robust level of protection for the Project Site.

It has been determined that, with the mitigations in place, the development area will have a less than significant impact on the wildland fire related issues raised under the AG guidelines.

Purpose and Scope of Report

Firesafe Planning Inc. performed an assessment of risks related to wildfires in order to assess the intensity of a wildfire approaching the Project Site. This report provides the results of that assessment and objective hazard and risk assessments which can be used to establish the community mitigations (hazard less mitigations = risk) that are equal to or greater than the hazards which would be encountered in a worst-case scenario.

The study takes into consideration existing/future vegetative interface fuels, topography, fire history and weather conditions during extreme fire conditions. The report provides results of computer calculations that measured the fire intensity, flame lengths, rate of spread, and fire travel distance (arrival times) from worst-case scenario wildfires in both the extreme (Diablo wind) and the predominant (Onshore wind) wind conditions.

The results of fire behavior calculations have been incorporated into the analysis of the interfaces of the project with adjacent wildlands and the potential ingress/egress routes used by the Project Site on a daily basis and under emergency conditions where evacuation might be possible.

The Fire Hazard Planning Technical Advisory General Plan Technical Advice Series, 2022 Update Finalized – August 2022, Figure 7, Page 31, from the Governor's Office of Planning and Research provided a visualization of risk vs hazard for wildfires as shown below (Figure 1). This report will use this guidance and terminology.

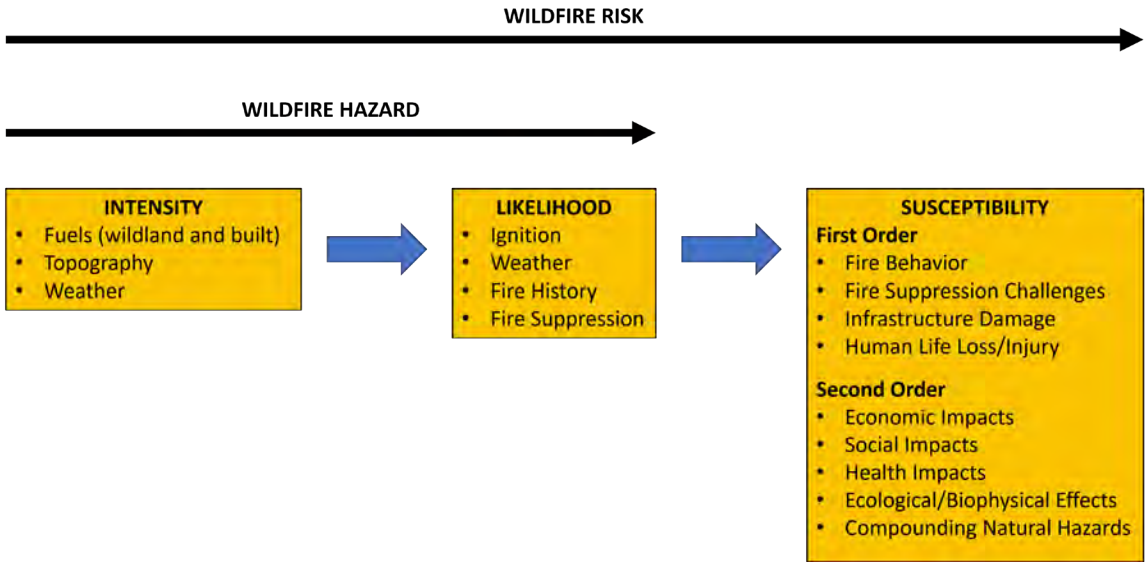


Figure 1 - Visualization of risk vs. hazard for wildfires-

Scope

This document will address the following tasks as outlined in the California Attorney General's "*Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act*" (AG Guidelines):

1. Determination if project impact will substantially impair an adopted emergency response plan or emergency evacuation plan;
2. Determine the project-specific Wildland Fire Hazard and Wildland Fire Risk to quantify issues that may exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
3. Determine if the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;
4. Determine if people or structures will be exposed to significant risks due to the completion of the project; and
5. Consider whether a project will "expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires".

CEQA Appendix G,

Section XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The AG guidelines encompass the CEQA Appendix G, Section XX, subsection a, b, and c requirements and as this report addresses the guidelines, it addresses the Appendix G issues in the same effort.

Project Description

The Project Site is located in an unincorporated area of Los Angeles County, California, near the community of Castaic, California. The Project Site is north of Interstate 5 and the community of Castaic, east of Ridge Route Road, west of Castaic Lake and south of the Templin Highway, as shown in Figure 2 (below) and Figure 3 (next page).

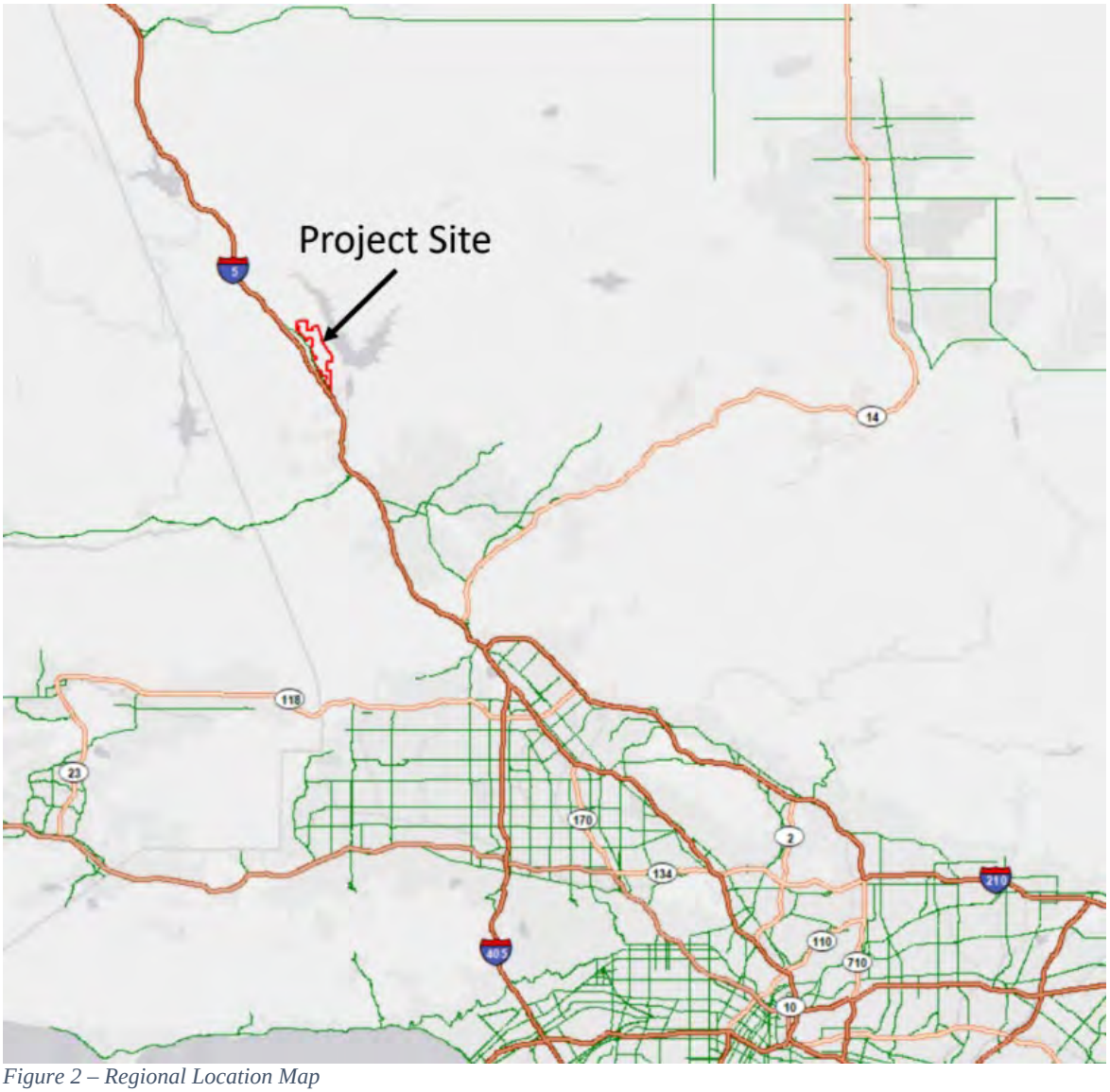


Figure 2 – Regional Location Map

The Project Site has three configurations under review for this analysis. The first is the project as previously approved (Previously Approved Project); the second, a configuration that avoids Grasshopper Creek entirely (Creek Avoidance Alternative); and the third configuration which partially avoids the Grasshopper Creek areas (Partial Creek Avoidance Alternative).

Each of these configurations (which are further broken down into planning areas) have different impacts as it relates to wildfire risk and will be analyzed as such. Each configuration is described in detail as follows:

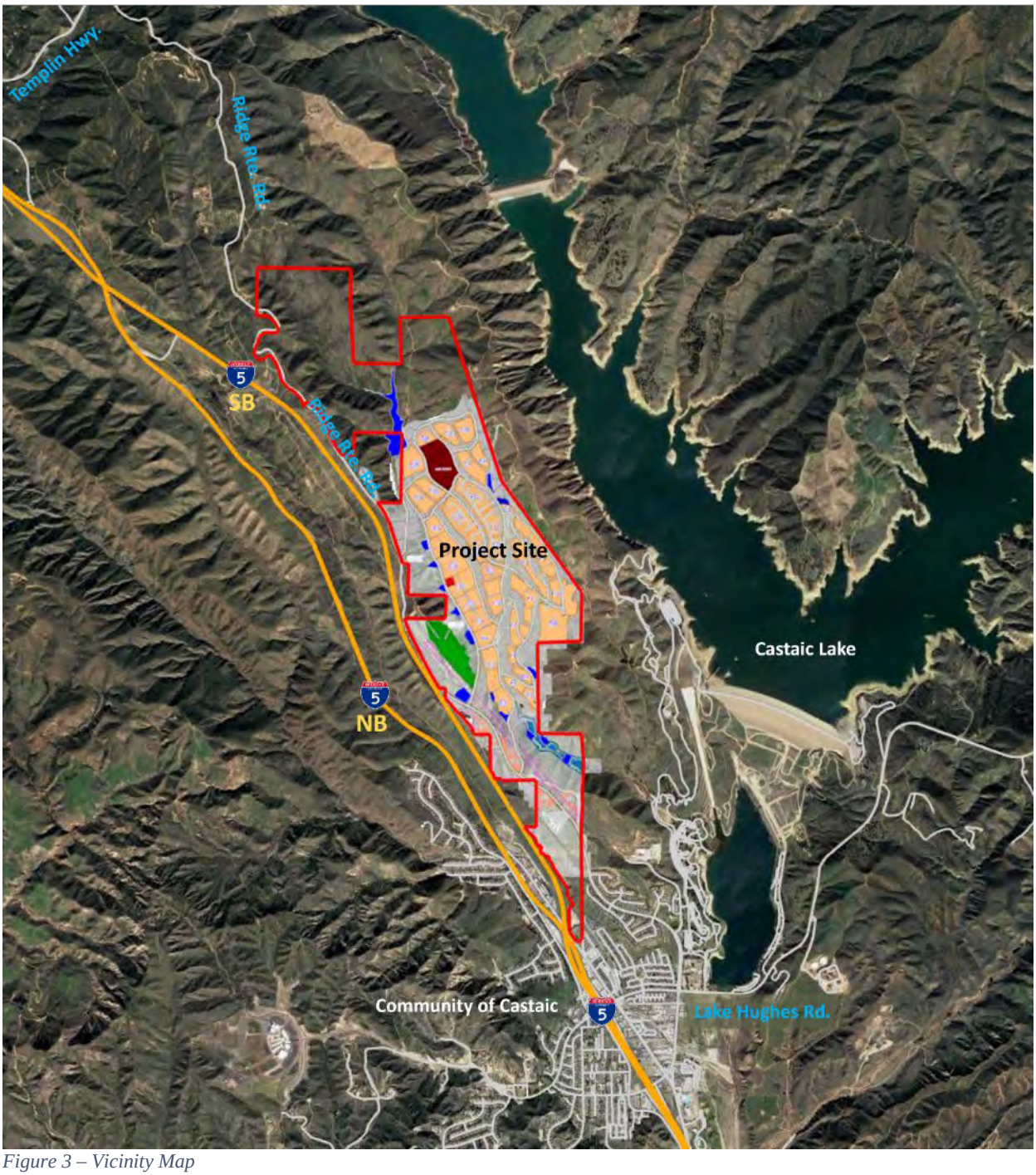


Figure 3 – Vicinity Map

Previously Approved Project

The project analyzed in the 2017 Supplemental Environmental Impact Report (SEIR)(decertified) would implement the previously adopted NorthLake Specific Plan (NLSP), but with a reduction of the area and intensity of physical development and an increase in open space as compared to the NLSP. Specifically, the Previously Approved Project involves the phased development of up to 3,150 residential units, 8.9 acres of commercial uses, 799.5 acres of parks and open space, a 22.9-acre school site, and a 1.4-acre pad for a future fire station. A total of 315 affordable units and 6 market rate live-work units will be provided; 95 of those will be designated as senior-living affordable units.

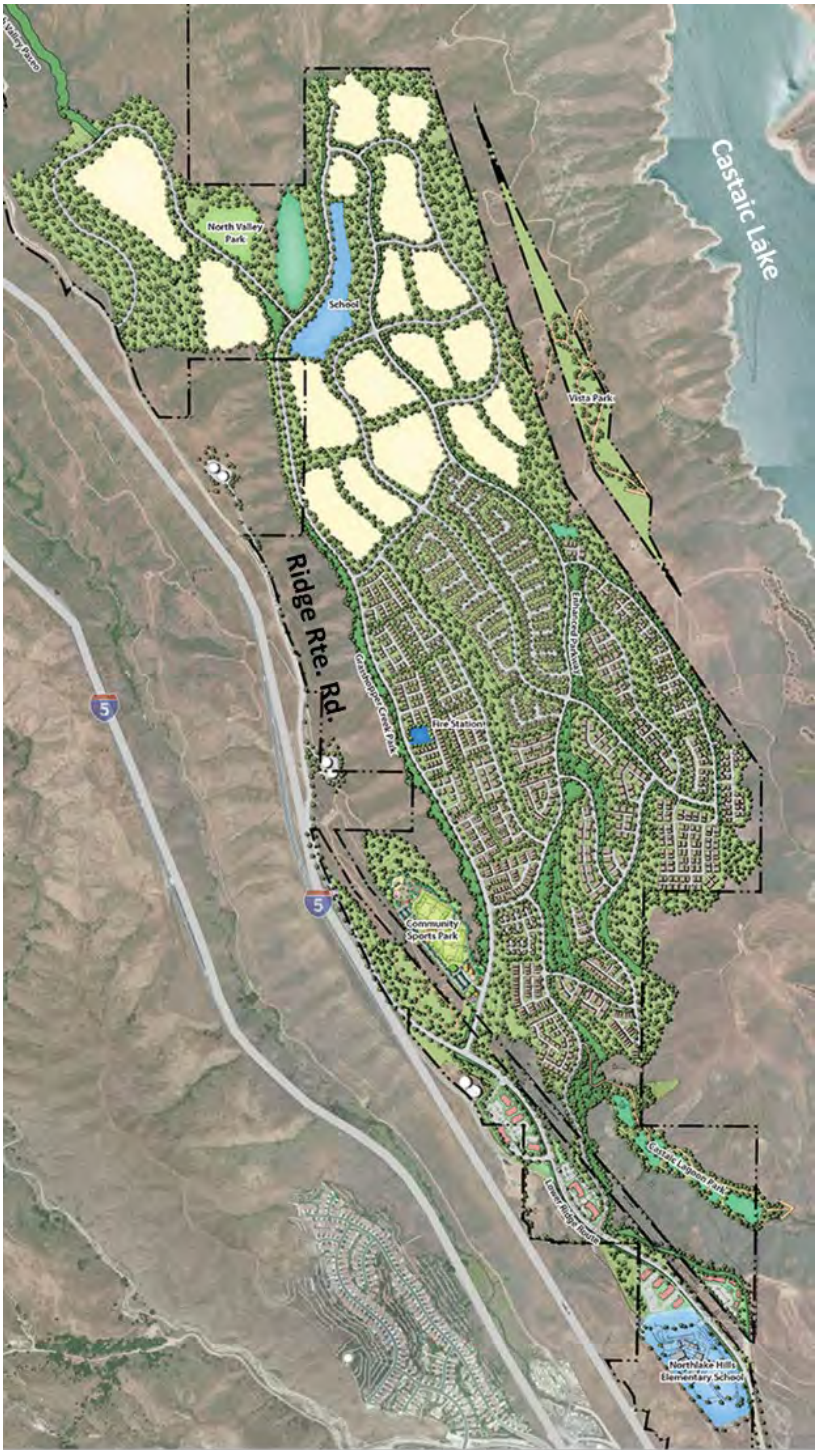
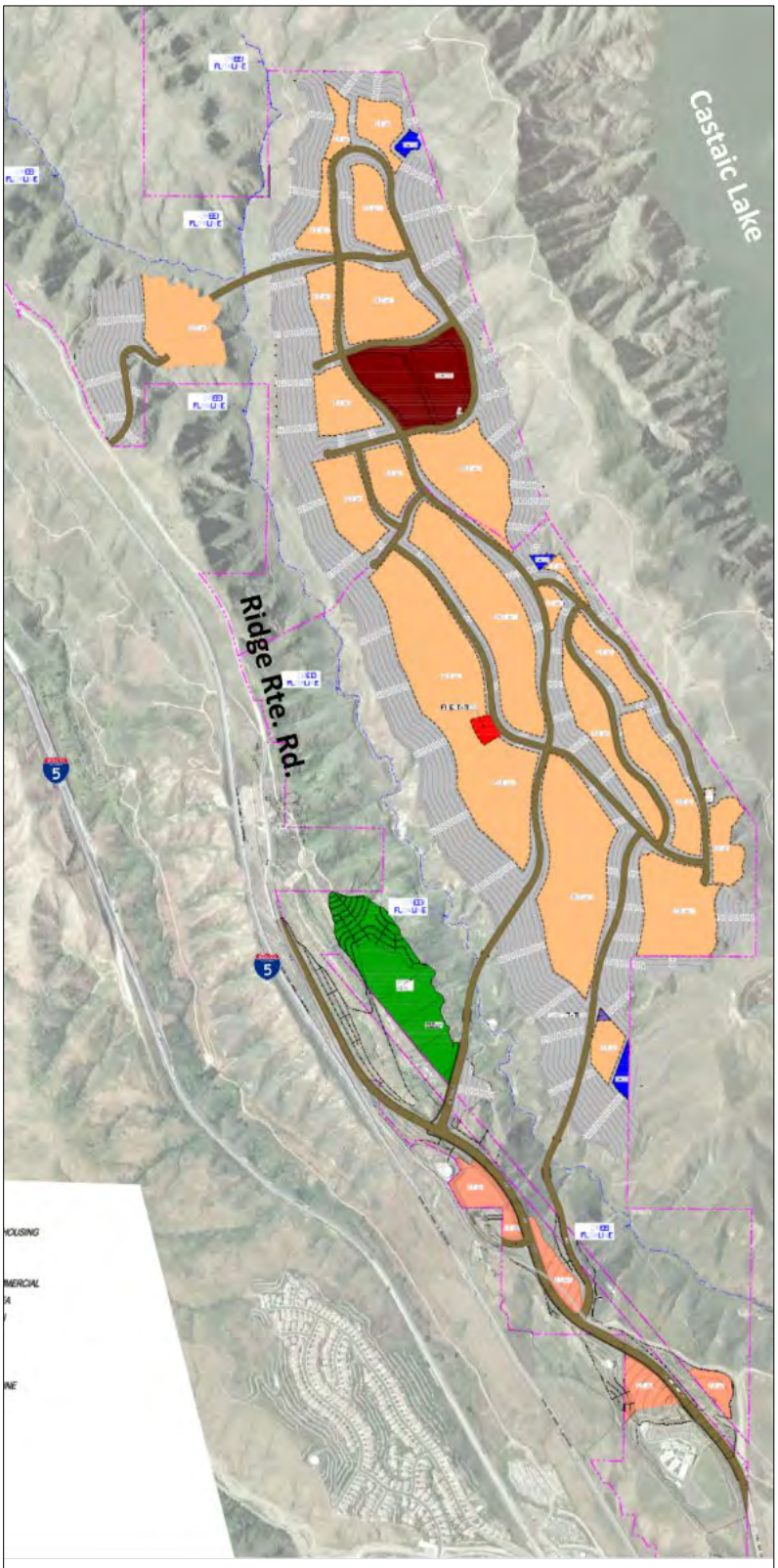


Figure 4 – Previously Approved Project Layout

Creek Avoidance Alternative (CAA)

This Creek Avoidance Alternative (CAA) assumes the same design basis as the previously assessed screening alternative in the SEIR (DSEIR, Section 6.5, Alternatives Deemed Not Feasible, Section 6.5.1 Creek Avoidance Alternative): avoid disturbing the creek bottom that runs through the Project Site while developing a viable land plan effectuating the NLSP. The existing landform is created by landslides that traverse the Project Site from the westerly side of Grasshopper Creek (Creek) to the easterly side of the Project boundary.

Typically, per standard engineering and design



practices and Los Angeles County requirements, all underlying landslides would be required to be removed and recompacted in order to provide a suitable soil condition for project development. Grasshopper Creek has several existing landslides directly underneath the creek bottom that extend from approximately 10 feet to 200 feet easterly and westerly of the creek bottom.

A 300-foot setback was determined to be an appropriate buffer from the creek bottom for the Creek Avoidance Alternative. Thus, the developable area for the Creek Avoidance Alternative will commence at the creek setback line and ascend easterly to the easterly boundary of the Creek Avoidance Alternative. The Creek Avoidance Alternative requires the realignment and new construction of Ridge Route Road. The CAA would require approximately 8.2 million cubic yards of export from the Project Site and the construction of three clear-span bridges to access the project from Ridge Route Road.

The developable acreage for the Creek Avoidance Alternative decreases the developable area from 364 to 286 acres, thereby reducing the amount of area available for development. After incorporating other conditioned site elements such as a 21 acres school site and 1-acre fire station (as per the Specific Plan) along with 167.0 acres of recreation

Figure 5 – Creek Aviodance Alternative Layout

and park areas, under the Creek Avoidance Alternative design, the residential unit count will be reduced to 1,815 (of which 165 units are affordable).

As compared to the 3,150 dwelling units (of which 315 are affordable units and 6 market rate live-work units) under the previously Approved Project, the Creek Avoidance Alternative would result in a reduction of 1,335 dwelling units. The Creek Avoidance Alternative will have similar commercial acreage as the previously approved project. Proportionately, the affordable unit count would be reduced from 315 to 165 units.

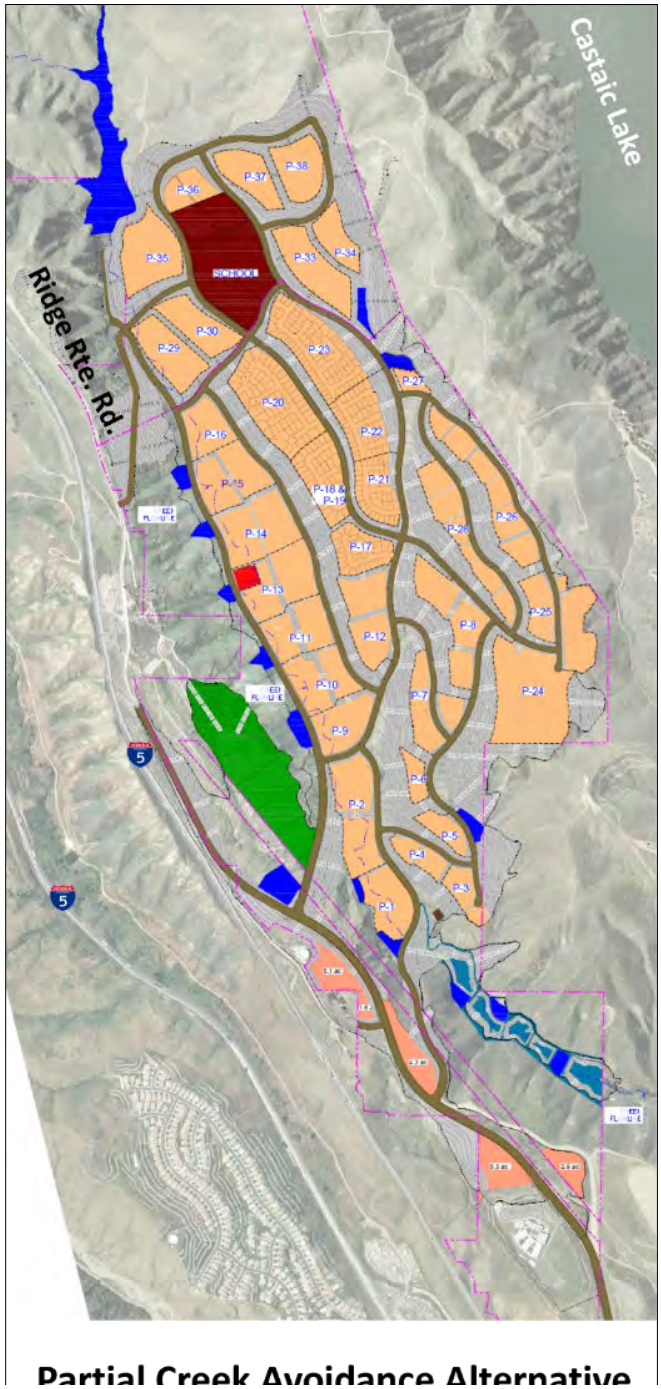


Figure 6 – Partial Creek Avoidance Alternative Layout

Partial Creek Avoidance Alternative (PCAA)

The Partial Creek Avoidance Alternative (PCAA) would leave Phase 1 of the Previously Approved Project but reduces scope of the Phase 2 development of the Previously Approved Project. The reduced Phase 2 area design avoids a cluster of smaller and larger landslides in the northern portion of the Phase 2 area. This is proposed to avoid disturbing the landslides and risk additional loss of Creek area (similar to the issues with the CAA). This alternative design would preserve both a portion of the Creek and sensitive habitat within Phase 2 area of the Project Site.

This alternative provides a balanced site within the proposed Phase 2 grading footprint and does not require any additional import or export of soil similar to the Previously Approved Project, while reducing the total disturbed area in Phase 2 by 61%, thereby creating additional undisturbed open space. It also reduces the impacts to that portion of the Creek on the Project Site by approximately 20%.

Furthermore, this alternative significantly reduces the raw earthwork of Phase 2 by approximately 10 million cubic yards. The alternate design maintains the Previously Approved Project unit count of 3,150.

The PCAA includes the agreed affordable component of 315 affordable units and 6 market rate live-work units, mixed-use, and

live-work units, and preserves the school and fire station sites, commercial sites, and the sports park, all of which were provided in the Previously Approved Project and remain unchanged in this alternate design.

When viewed side-by-side, the impacts of the two alternatives are more readily visible, as shown below (Figure 7). The Partial Creek Avoidance Alternative will not develop to the north as much as the other two alternatives.

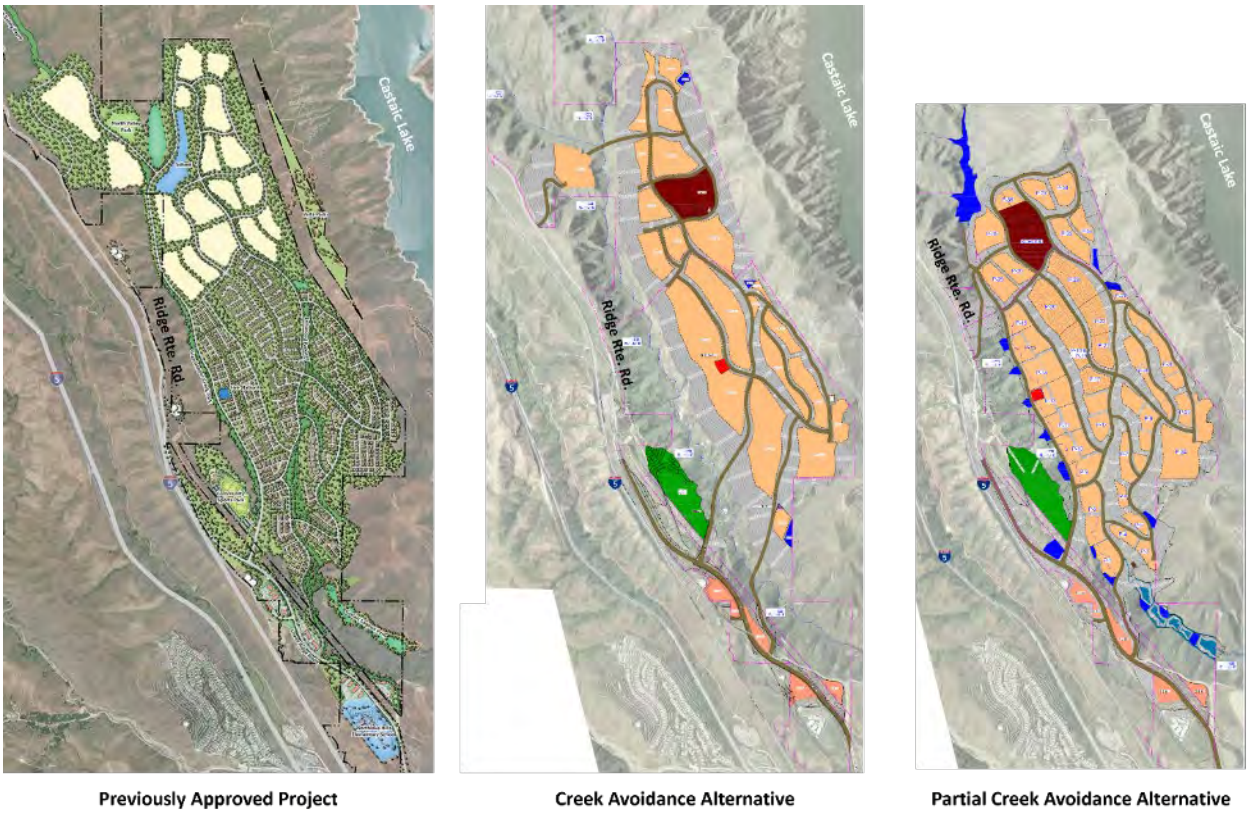


Figure 7 – Comparision of three layout alternative

Current Environmental Conditions

General Location of Site and Adjacent Wildland

The Project Site will have undeveloped natural areas on all sides of it. While these areas do have roads, infrastructures, recreational facilities, and a few structures, the area immediately adjacent to the Project Site development area will be native or natural open space areas. Figure 8, on the next page, provides an illustration of the general vegetation classifications around the Project Site as provided in the latest data available from the Landfire Database site supplied by the United States Forest Service (USFS) and Department of the Interior (DOI) at https://landfire.gov/index.php.

The interface is primarily Herbaceous (grasses) and Shrublands (chaparral/brush). To the east is Castaic Lake which provides a non-burnable barrier to fires driven by NE or E winds. To the west is Interstate 5 which can provide opportunities for fire suppression activities but, as will be

discussed in a later section, does not provide a guarantee of success in stopping a fire under wind-driven conditions as indicated by the area fire history.

In Figure 8 below, the orange areas are mostly seasonal grasslands, and the brown areas are shrublands or chaparral. In Figure 9, on page 15, the vegetation classification is shown down to the EVT (Existing Vegetation Type). Again, the orange areas are mostly grass. The brown areas are now divided between the lighter brown (Buckwheat/Sage) and the darker brown (Chaparral) where the heavier of the two fuels (Chaparral) increases as the topography moves north (higher). Before transitioning out of the Sage/Buckwheat, the area to the east and northeast of the Project Site has the heavier fuels on the north aspects and lighter fuels on the more southern aspects where the ridgelines run west/east in the orientation.

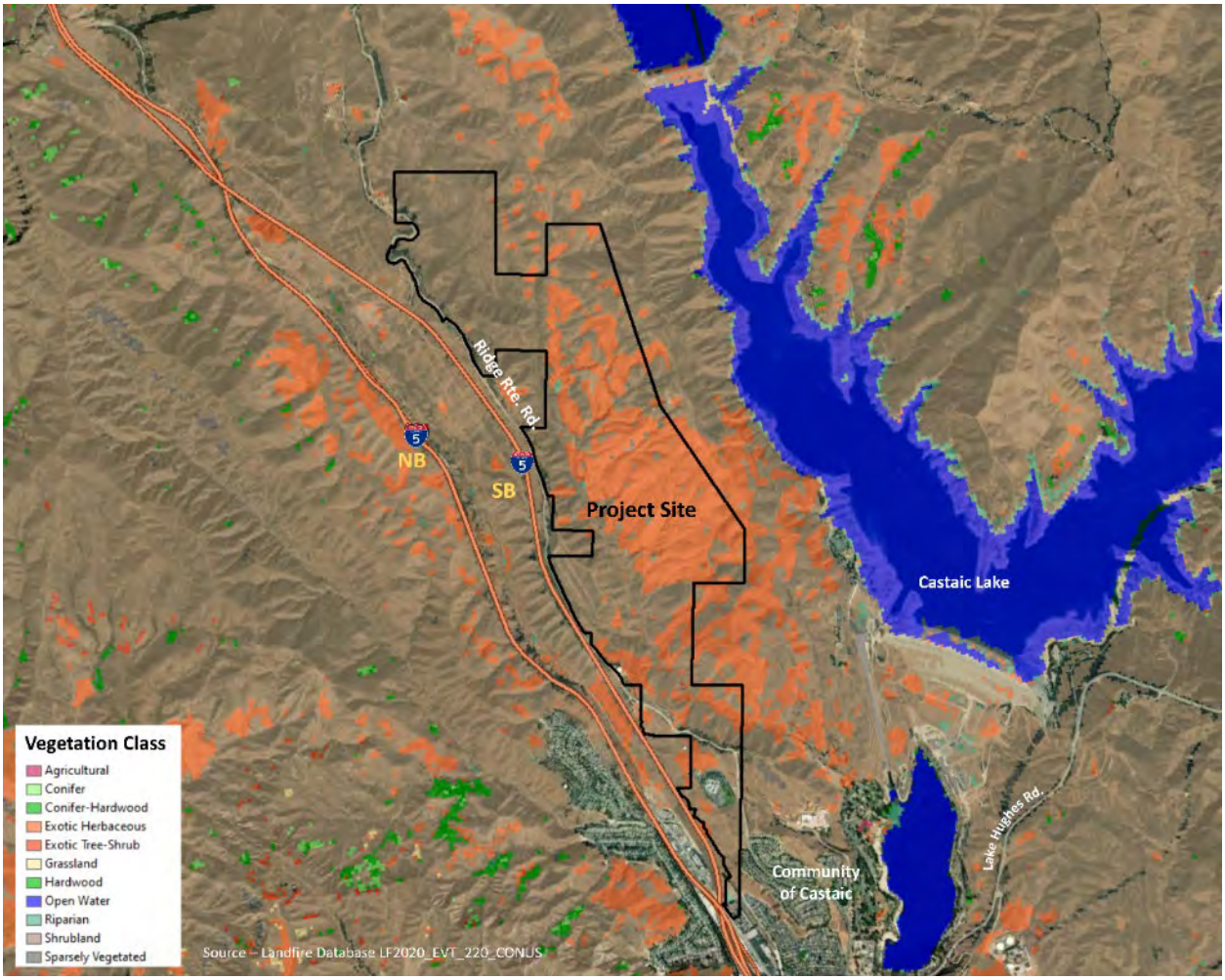


Figure 8 – Vegetation Classificiation Map

Wildland vegetation (fuel) is relatively homogeneous within the future interface at the Project Site boundaries (at the edge of the development area). Some canopy vegetation (mostly oak trees) exists, primarily in the bottoms of larger drainages.

Figure 10, on page 16, provides a detailed accounting of the vegetation types on the Project Site as provided by the SEIR. This assessment, while more specific, agrees with the Landfire data

indicating the interface is primarily shrubland with grasslands. Much of the grassland within the Project Site will be within the development area.

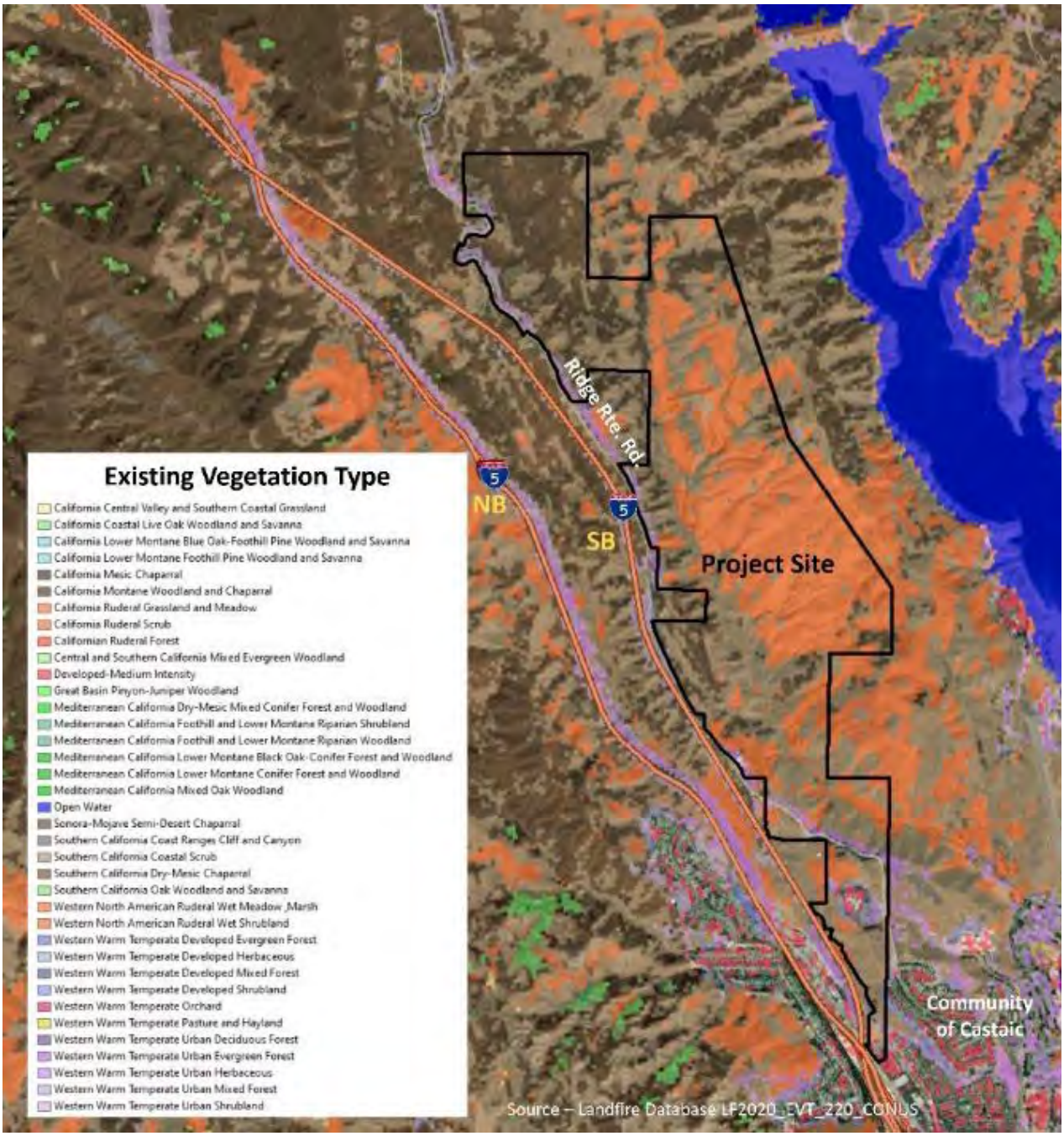
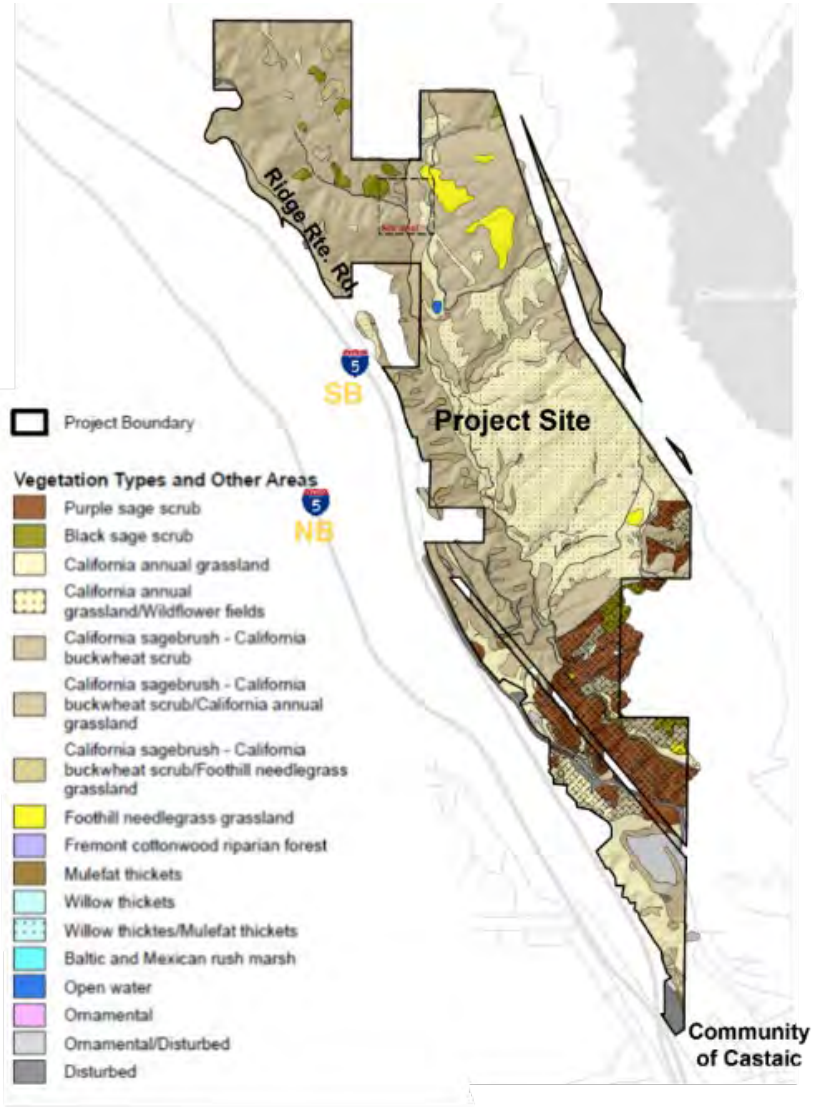


Figure 9 – Existing Vegetation Type Map

To the east of the Project Site is the Castaic Lake State Recreational Area. This area contains boat ramps, day-use facilities, campgrounds, and support buildings/structures for the County staff who operate the facility. This area is shown in Figure 11.

The Project Site has three significant utility easements which run through the site. On the east side is a power line easement for the Los Angeles Department of Water and Power; through the center is an existing oil pipeline which will be relocated by the project, and to the southwest and west is another powerline easement belonging to Southern California Edison (SCE). The powerline easements will remain in the same general area that they currently exist, with some minor tower relocations on the SCE line. The location of all three is shown in Figure 12 on the next page.



Source - NorthLake Specific Plan Project, Draft Supplemental Environmental Impact Report, Vegetation Types and Other Areas, Exhibit 5.2-1.

Figure 10 - Vegetation Type from SEIR

The powerlines will be addressed later in this document as they pertain to wildland fire hazard/risk and evacuation. The relocated pipeline will not be a factor in either the hazard/risk analysis or in the evacuation discussion as it will be buried to a depth that will make it unaffected by a wildland fire.

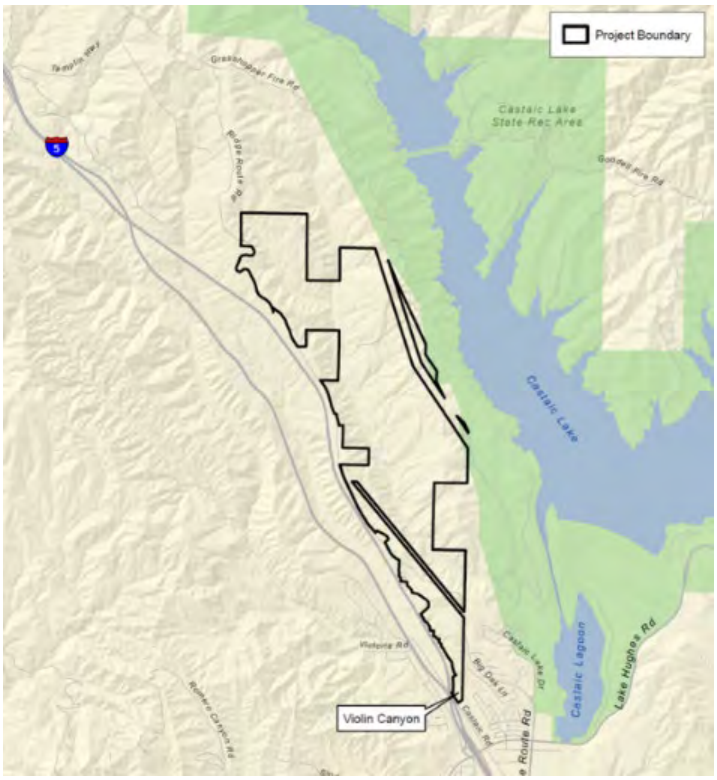


Figure 11 – Castaic Lake Sate Recreation Area Map

Grasshopper Creek runs through the Project Site and is the subject of the two alternatives provided in the report. This is a seasonal creek and only holds water during wet periods.

This drainage is called an intermittent stream, which is a United States Geologic Survey (USGS) designated "blueline" watercourse.

Figure 13, on the next page, shows the Creek as it exits the Project Site on the south, and Figure 14, also on the next page, shows the upper reach of the watercourse at north end of the Project Site.



Figure 12 – Project Site Utility Easements

While the Creek has some vegetation in the bottom of the watercourse, not present in the general landscape around it, the volume and nature of this vegetation will not add to the wildland fuel load beyond that which is already present in the chaparral fuels.

The 2023 Fire Plan for the County of Los Angeles Fire Department states;
Much of the Santa Clarita Valley and the Santa Monica Mountains have the following vegetation types: coastal sage, riparian, oak woodlands, and chaparral.

Coastal sage communities are typically found in lower elevations and drier sites of coastal south-facing slopes. Various plants include purple sage (Salvia leucophylla), California sagebrush (Artemisia californica), coast buckwheat (Eriogonum latifolium), laurel sumac (Malosma laurina), and lemonade berry (Rhus integrifolia).

Riparian communities are woodlands with multi-layered vegetation, including Arroyo willows (Salix lasiolepis), California black walnut (Juglans californica), California sycamore (Platanus racemosa), Fremont cottonwood (Populus fremontii), Mexican elderberry (Sambucus nigra), California bay laurel (Umbellularia californica), and mule fat (Baccharis salicifolia). Oak woodlands are found on northern slopes blanketed with coast live oak (Quercus agrifolia), valley oak (Quercus lobata) in warmer areas, hollyleaf cherry (Prunus ilicifolia), California bay laurel (Umbellularia californica), coffeeberry (Frangula californica), and poison oak (Toxicodendron pubescens).

Chaparral communities typically have shrubby vegetation seen on both coastal and inland hillsides and are separated into two types: soft chaparral (usually called coastal sage scrub) and taller, hard chaparral. Chaparral is dominated by evergreen and drought deciduous shrubs one to fifteen feet tall. Most plants are recognized by tough, leathery leaves that reduce water loss in dry climates. Many chaparral plants contain volatile oils, which produce a strong odor and increase flammability. Common examples include various species of ceanothus (Ceonothus spp.), manzanita (Arctostaphylos spp.), sage (Salvia spp.), sagebrush (Artemisia spp.) sumac (Malosma spp.), toyon (Heteromeles arbutifolia), and chamise (Adenostoma spp.).

There are also significant oak woodland communities along shaded canyon slopes and riparian communities within streambeds. Streambeds have cottonwoods (Populus spp.), willows (Salix spp.), and related vegetation requiring more water.

Determining wildfire risks in LA County involves assessing fire-adapted chaparral ecosystems, dynamic Mediterranean weather conditions, values at risk, and the fire protection system's ability to respond. The California Strategic Fire Plan employs an intensive assessment process graphically depicting fuels, weather, and assets at risk in a Geographic Information System (GIS) program.

The project site has many of the vegetation communities listed in the Fire Plan. The photos on the next page are good examples of the those listed above. Figure 13 provides an example of the bottom of one of the streambeds with the vegetation quickly changing to grassland and grass/scrub mixtures where the additional water is not available.

Figure 14 is the classic example of a north slope (aspect) which is covered with chaparral species while the flatter and southern slopes are mostly grasslands. This is explained in more detail later in this report.

The Los Angeles County Fire Department is one of six contract counties (Orange, Los Angeles, Kern, Ventura, Santa Barbara, and Marin), which have executed a contract with the State of California to provide wildland fire protection on State Responsibility Areas (SRA).

The Los Angeles County Fire Department has the responsibility as a contract county to implement the 2018 California Strategic Fire Plan in Los Angeles County. As such, the Department functionally operates as a CAL FIRE unit and is responsible for all Strategic Fire Plan activities within the County. The project site will meet or exceed the fire protection requirements of the Los Angeles County Fire Department.



Figure 13 – South end of Project Site at the Grasshopper Creek interface



Figure 14 – North end of the Project Site at the Grasshopper Creek interface

Agency responsible for fire protection

The Los Angeles County Fire Department is the service provider to the Project Site and land immediately adjacent. Overall jurisdiction is classified as FRA (Federal Responsibility Area), SRA (State Responsibility Area) or LRA (Local Responsibility Area) as shown in Figure 15, below. FRA is federal land, in this case, a national forest. SRA is land with the State of California for which the state has the primary responsibility for wildland fire protection. In this case, the Los Angeles County Fire Department is a in contractual agreement with CAL Fire to provide wildland fire protection on SRA land that CalFire would normally provide within the wildland areas of Los Angeles County. LRA is land within incorporated cities and unincorporated land within the county which does not meet the criteria for inclusion in the SRA.

In the figure below (Figure 15), the green areas are FRA, the light red areas are SRA, and the yellow areas are LRA. Unshaded areas are not in a wildland responsibility area. However, the Project Site is in and surrounded by SRA lands.

SRA/LRA/FRA

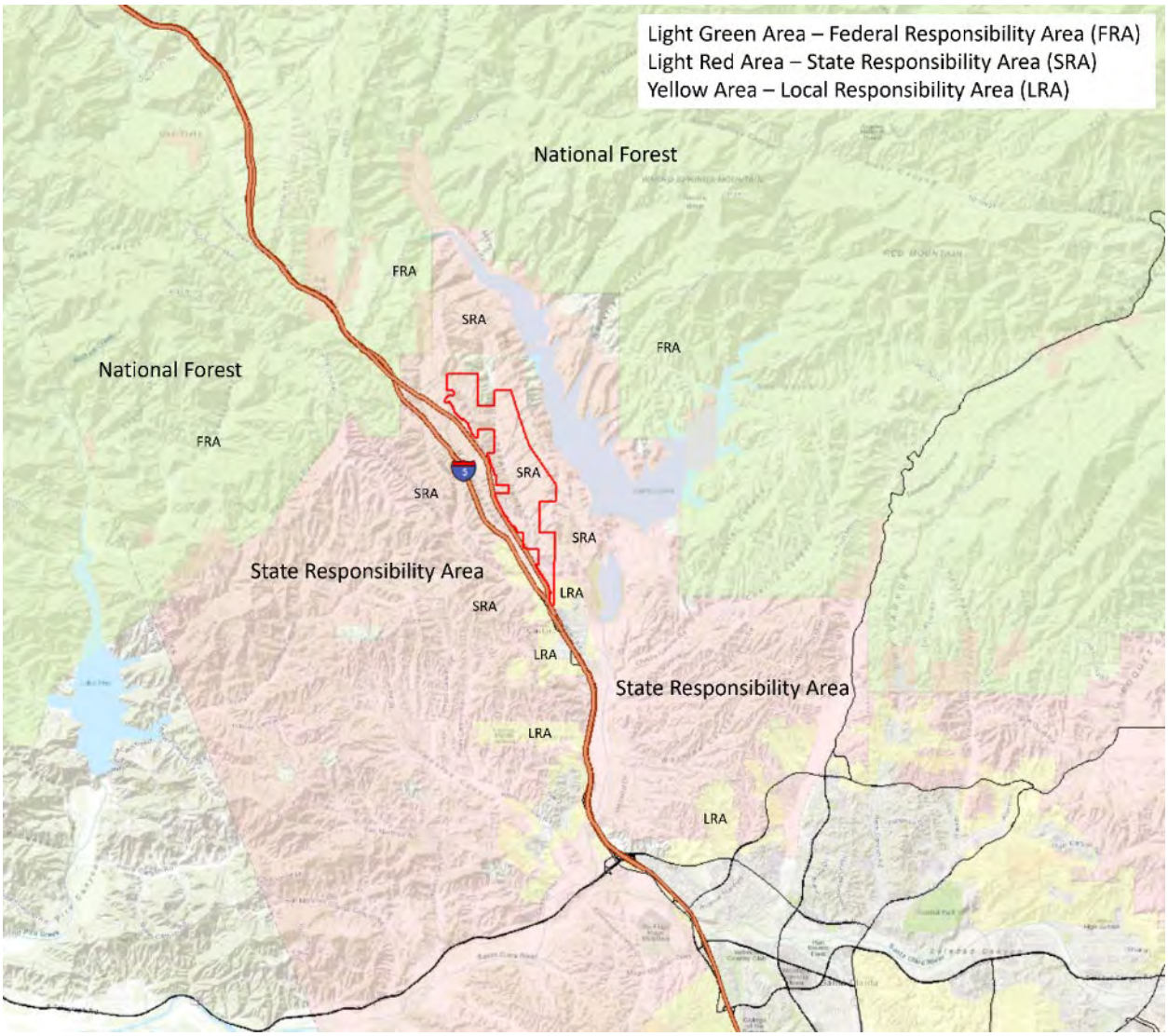


Figure 15 – Map Responsabilty Areas (SRA/LRA/FRA)

Fire Severity Zones and proximity

Fire Hazard Severity Zones are currently based on potential fuels, fire weather conditions, and terrain and represent potential fire hazard exposure to structures and other human infrastructure assets. FHSZ areas are adopted as a Title 14 regulation, and fulfill the obligations laid out in Public Resources Code (PRC) Sections 4201-04, and are essential in various fire safety regulations, building construction standards, and real estate hazard disclosure requirements. These zones were initially determined in November 2007 for SRA and September 2008 for LRA SRA has been revised by CalFire and the LRA update is underway. Some changes are expected in LRA, but the entire Project Site is already at the highest level of wildland risk currently, and have remained so in the updated SRA zones.

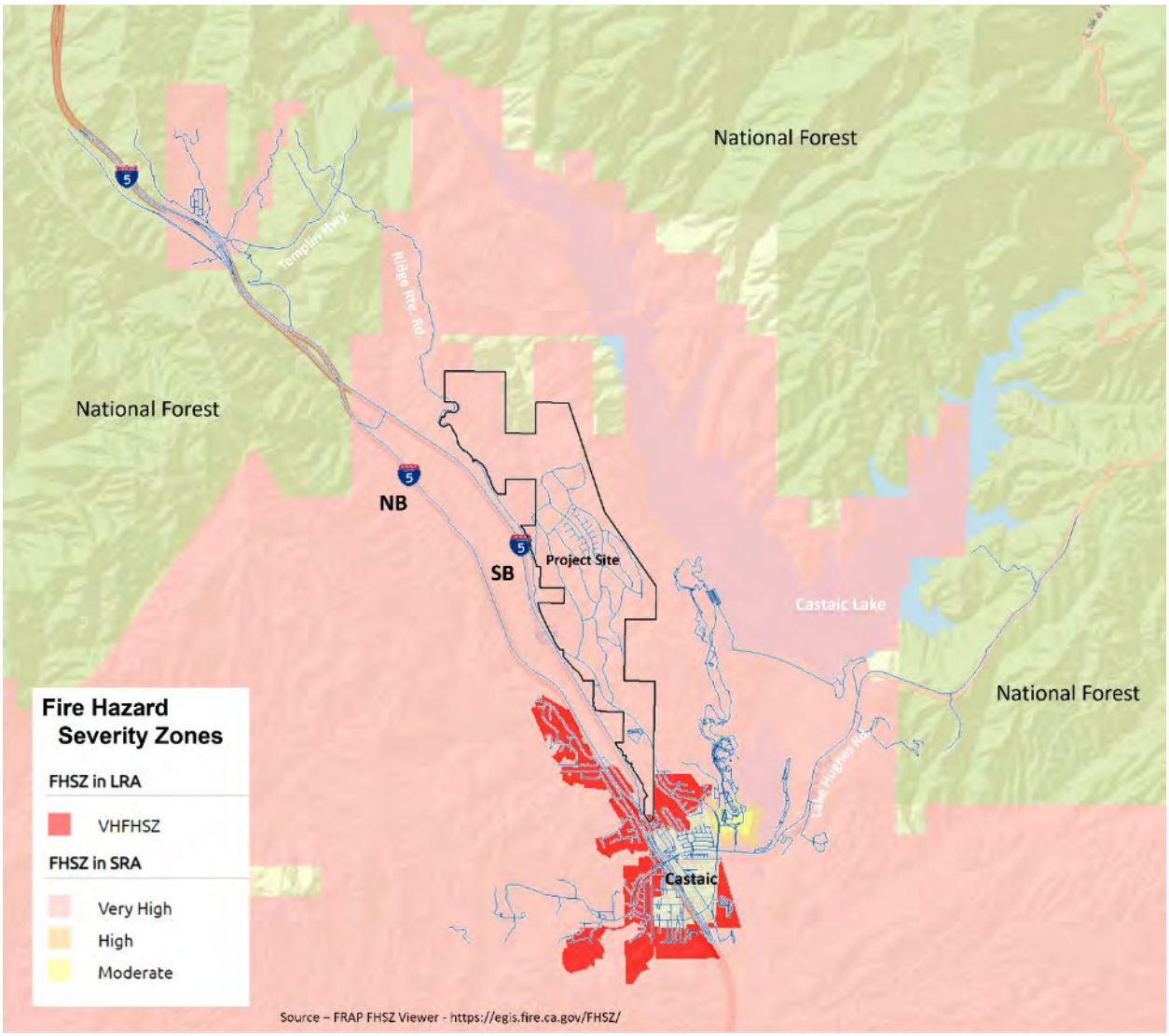


Figure 16 – Fire Hazard Severity Zones (current)

Wildland Interface/Intermix

The wildland urban interface (WUI) is defined by the U.S. Forest Service as any area where "humans and their development meet or intermix with wildland fuel." This area includes

communities that are within a half-mile of this interface. The WUI is classified into two categories:

1. Interface WUI — where structures are adjacent to the wildland vegetation. A clear line of delineation is provided.



2. Intermix WUI — where structures intermingle with wildland vegetation. Each structure or group of structures has its own interface.



Source: "Fire FAQs-Are Structures Fuel? The Wildland Urban Interface and the 'Built' Environment", Daniel Leavell, Stephen A. Fitzgerald, Carrie Berger, Gavin Horn, EM 9291 Published August 2020

The Project Site will utilize a WUI Interface for each of the planning areas. Some native areas will remain between planning areas but most of the development will create an area where the only interface with native fuels will be on the perimeter. Figure 7, on page 13, illustrates this well. This is discussed in more detail in the analysis of each alternative.

Codes, guidelines, and standards

The Project Site will be required to provide protection measures as required by a number of Laws, Codes, Ordinances, Regulations, Guidelines, and Standards (collectively, Regulations). Below are the major Regulations which will impact on the Project Site:

- PRC Sections 4290 through 4299.
- PRC Sections 4201 through 4204 for State Responsibility.
- Title 14 of the California Code of Regulations (14 CCR), Division 1.5, Chapter 7, Subchapter 2, Articles 1-5, "State Minimum Fire Safe Regulations".
- California Code of Regulations, Title 24, Part 9, California Fire Code, Chapter 49 as amended and adopted by the County of Los Angeles.
- California Code of Regulations, Title 24, Part 2 (Volumes 1 and 2), California Building Code, Chapter 7A as amended and adopted by the County of Los Angeles.
- California Code of Regulations, Title 24, Part 2.5, California Residential Code, Section R337 as amended and adopted by the County of Los Angeles.

- Los Angeles County Code, Title 32, Los Angeles County Fire Code
    - Section 503 - Fire Apparatus Access Roads
    - Section 507 – Fire Protection Water Supplies
    - Section 4905 - Wildfire Protection Building Construction
    - Section 4906 - Vegetation Management
    - Section 4907 – Defensible Space
    - Appendix B - Fire-Flow Requirements for Buildings
    - Appendix C - Fire Hydrant Locations and Distribution

The Project Site will have wildland specific requirements before, during and after construction.

Prior to Construction

The Protect Site will be required to have an approved Preliminary Fuel Modification Plan prior to any subdivision or land; or, have final approval prior to the issuance of a permit for any permanent structure used for habitation (Fire Code Section 4908.1).

Protection During Construction

The Los Angeles County Fire Department has adopted Chapter 33 of the California State Fire Code entitled, Fire Safety During Construction and Demolition. This section of the Fire Code provides requirements for "Precautions Against Fire", Combustible and Flammable Liquids, Flammable Gases and Explosive. Additionally, it requires readily accessible means of reporting emergencies, access roadways and fire department water supplies to all areas where combustible construction is occurring. This section requires the development, implementation and maintenance of an approved, written Site Safety Plan establishing a fire prevention program at the Project Site applicable throughout all phases of the construction, repair, alteration or demolition work. This plan addresses the requirements of the Fire Code, the duties of staff and staff training requirements. The Site Safety Plan must be submitted and approved before the issuance of a building permit. Any changes to the plan must be submitted and approved by the fire department.

Protection After Construction

The Project Site is within a Fire Hazard Severity Zone which requires the enforcement of Fire Chapter 49 as amended and adopted by the County of Los Angeles. This chapter provides for increased wildfire building construction protection (maintenance, additions, and remodels compliance wildland standards), vegetation management, defensible space and compliance with an Approved Fire Protection Plan. These requirements provide for the implementation and maintenance of California Building Code Chapter 7A, California Residential Code Section R337 and Californian Reference Standards Code Chapter 12-7A as amended and adopted by the County of Los Angeles. It further requires that building and structures be maintained in accordance with California Public Resources Code Section 4291, California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Article 3, Section 1299.03; California Government Code Section 51182 and California Code of Regulation, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07. The Project Site is also with the SRA which requires it to comply with the SRA Fire Safe Development Regulation as specified in Title 14, Division 1.5, Chapter 7, Subchapter 2. The Project Site will need to be maintained to the same standards and Regulations that were applicable at the time of construction on an ongoing basis.

Public Information and Resident Education

All of the requirements for the fuel modification zones, defensible space requirements, limitations on remodels/additions on the interface lots and community planting restrictions will cover included in the disclosure documents provided to the owners during the escrow process. Additionally, these requirements will be fully detailed in the Project Site CCR's (Covenants, Conditions, and Restrictions) which are legal documents which are filed with the county recorder's office and made a part of the official real estate records that run with the land that is part of the community. The HOA will have a responsibility to inform the residents of the requirements, review and approve changes to the property and provide a process to ensure compliance with the community standard where applicable.

Project Analysis - Wildfire Hazard and Risk

The analysis of Wildland Risk starts with the review of the hazards, the likelihood of an event, and the intensity of that event which is then examined against the vulnerability (exposure and susceptibility) to provide a "level of risk".

Wildfire Hazard

Likelihood

Wildfire likelihood is the probability of a wildfire burning in a specific location. At the community level, wildfire likelihood is accessed in the area where housing units are present. The likelihood is the probability that any specific location will experience a wildfire in any given year. Fire history is the main data source for this analysis along with potential ignition sources and weather conditions that lead to extreme fire behavior.

Fire History

The Project Site is within/adjacent to a historic fire corridor. When the fire history is viewed in total (all records available) this is evident (Figure 18, next page). On the following two pages are illustrations of the fire history over the past 10, 20 and 50 years to provide some ability to see the data over time. On page 27(Figure 22), is a map of all fires over 50 acres that have occurred within 7.5 miles of the center of the Project Site since January of 2004. They are listed to the left in Figure 17.

Year	Agency	Unit_id	Fire Name	Alarm Date	Gis Acres
2004	USF	ANF	INTERSTATE	20040625	374
2004	USF	ANF	EAST	20040807	1,337
2004	CCO	LAC	WAYSIDE	20040503	91
2005	CCO	LAC	OAK	20050625	134
2006	USF	LPF	DAY	20060904	161,816
2007	CCO	LAC	BUCKWEED	20071021	38,348
2007	USF	ANF	RANCH	20071020	58,410
2009	CCO	LAC	SLOAN	20090717	82
2009	USF	ANF	ISLAND	20090701	61
2009	USF	ANF	OSITO	20090713	332
2012	CCO	LAC	FIVE MILE FIRE	20120608	489
2013	CCO	LAC	LAKE	20130517	660
2013	USF	ANF	BEE	20130809	206
2013	USF	ANF	POWERHOUSE	20130530	30,268
2015	USF	ANF	WARM	20150816	270
2017	CCO	LAC	LAKE	20170617	733
2017	CCO	LAC	RYE	20171205	6,048
2018	CCO	LAC	CHARLIE	20180922	3,351
2019	USF	ANF	FIVE	20190803	156
2020	CCO	LAC	CASTAIC	20200801	178
2020	USF	ANF	LAKE	20200812	30,999
2020	CCO	VNC	HOLSER	20200817	2,189
2020	CCO	LAC	EQUESTRIAN	20200608	84
2021	USF	ANF	ROUTE	20210911	455
2021	CCO	LAC	NORTH	20210428	552
2022	CCO	LAC	ROUTE	20220831	5,208

Figure 17 – Fires in the Project Site area over the past 50 years

Of the 26 fires listed to the left, only three burned onto the Project Site. Five Mile 2012, Lake 2013, and Route 2022. The recent Route Fire was the largest at 5,208 acres. The Five Mile and Lake Fires (2013) were 489 and 660 acres respectively.

One in five fires on the list is a major fire (over 30,000 acres). This represents approximately 20% of the large fires in this area.

The list of large fires spans 18 years, making the regional large fire return interval less than one year, but the Project Site has had all three of its fires in the past ten years, making the site interval over three years.

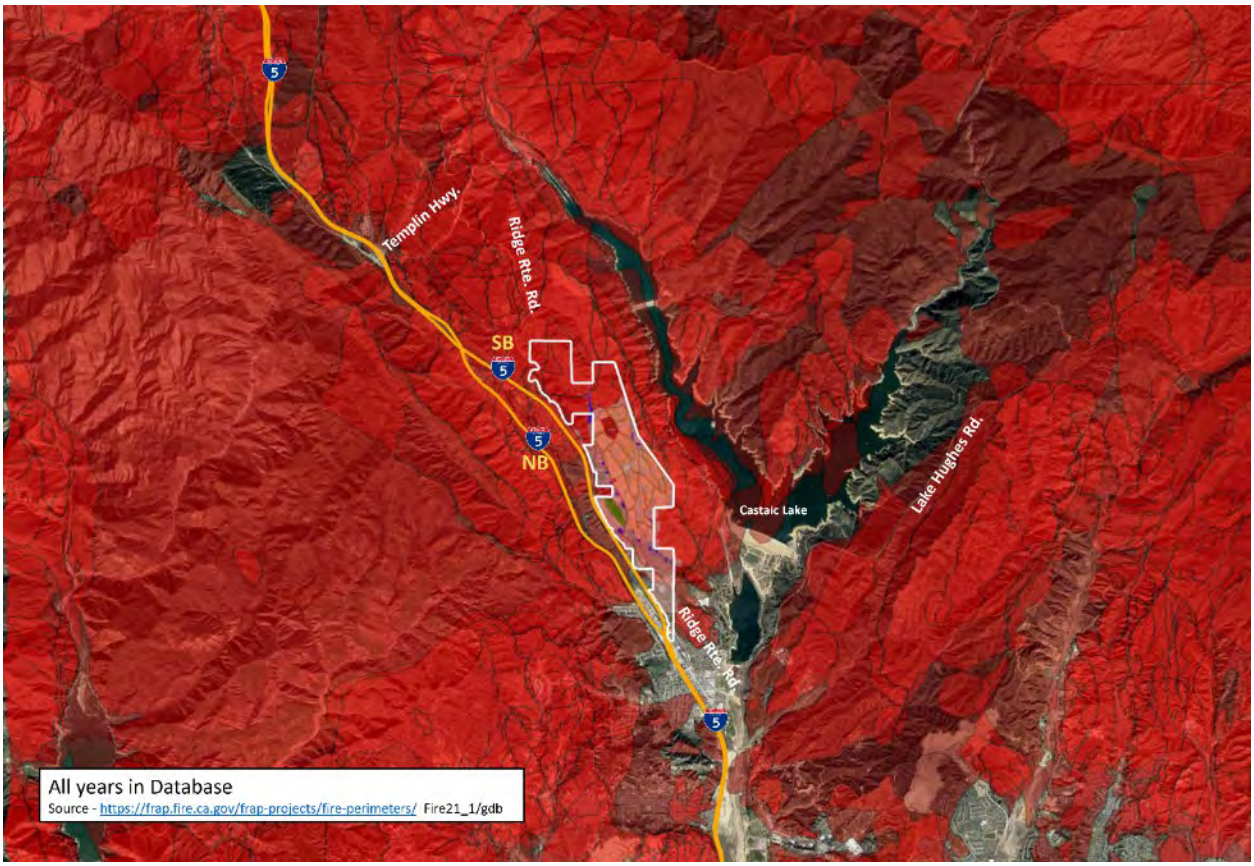


Figure 18 – Fire History for the regional area (all fires/all years)

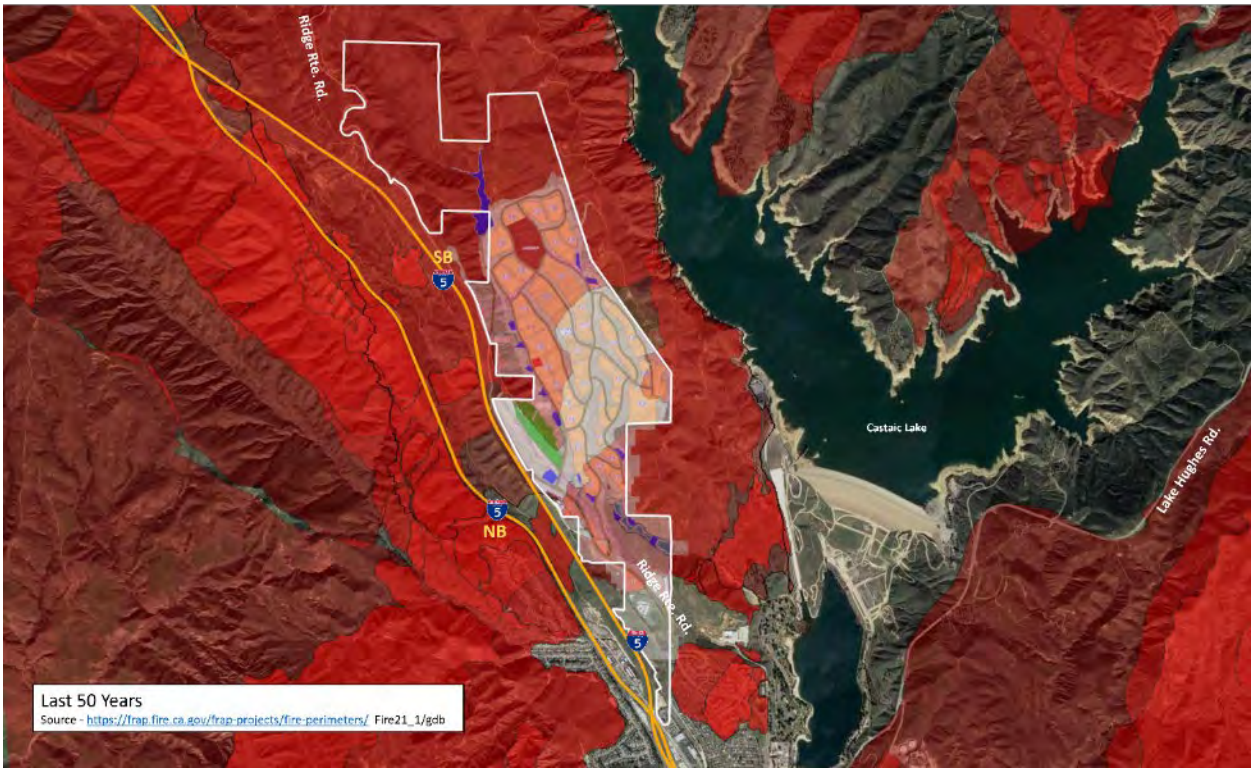


Figure 19 – Fire History for the regional area (past 50 years)

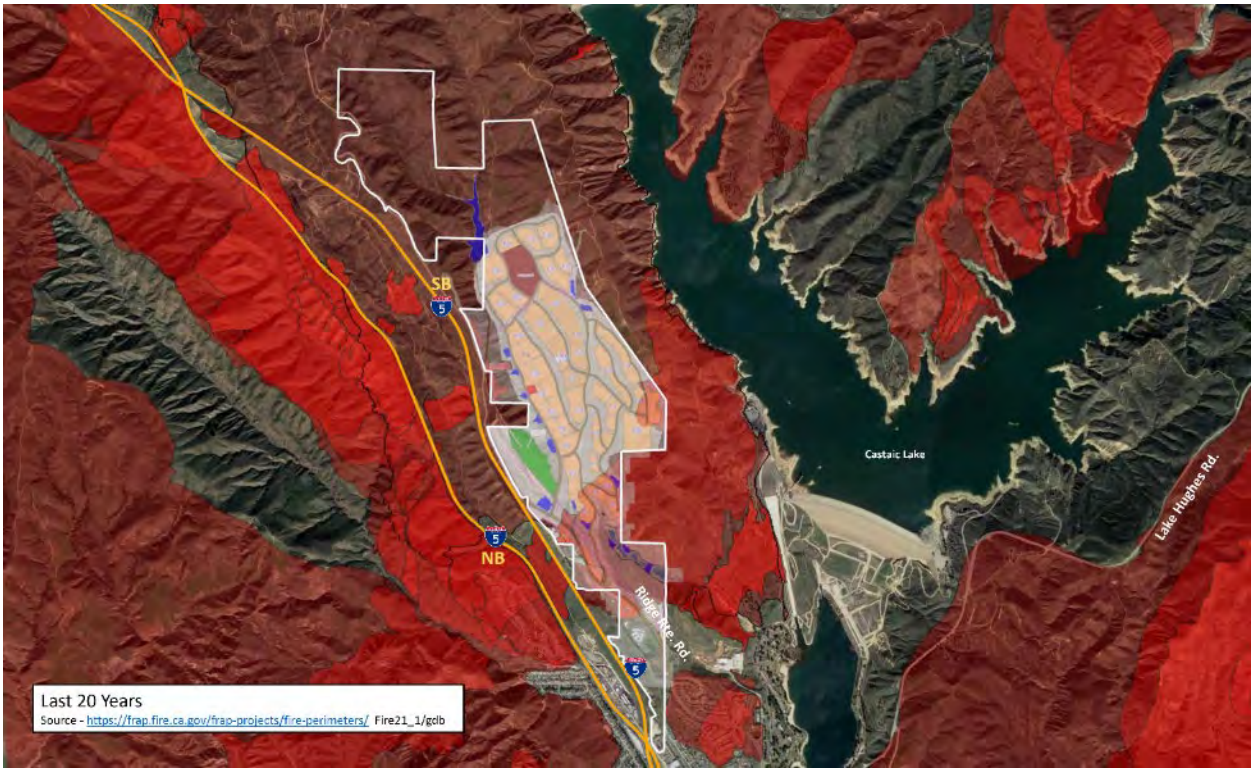


Figure 20 – Fire History for the regional area (past 20 year s)

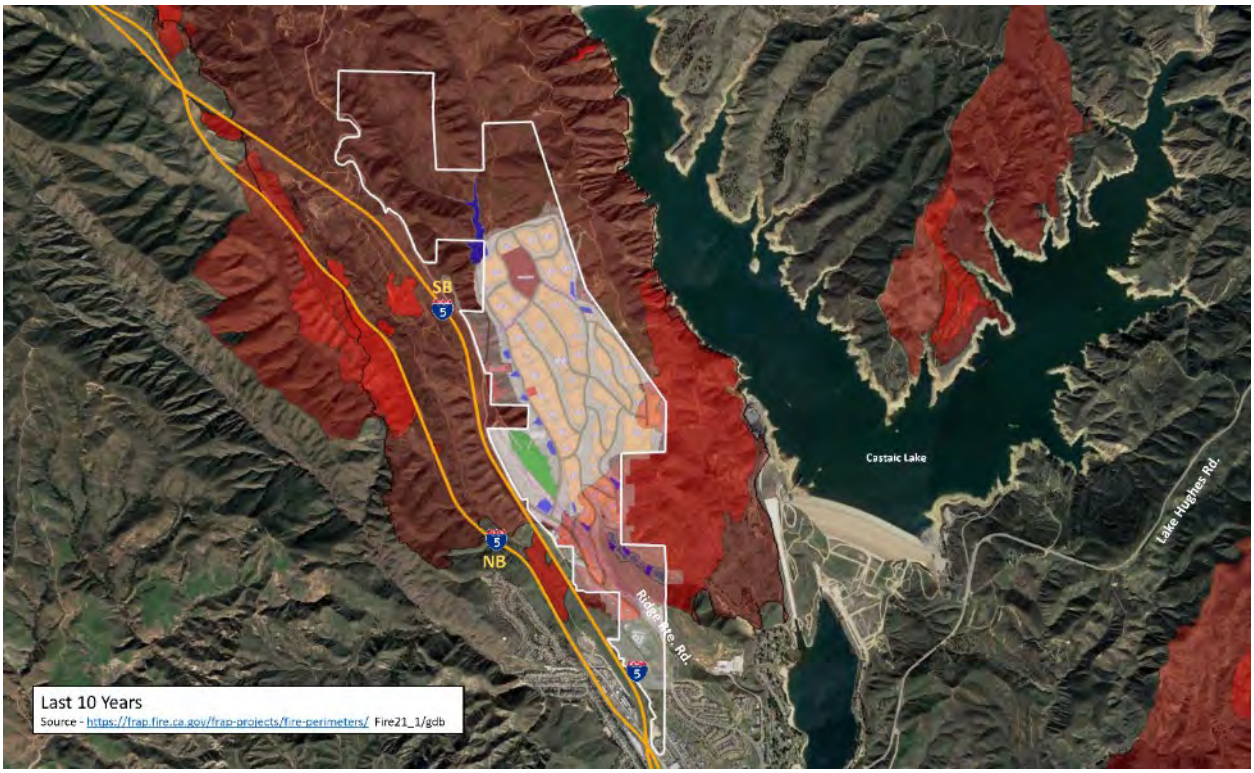


Figure 21 – Fire History for the regional area (past 10 years)

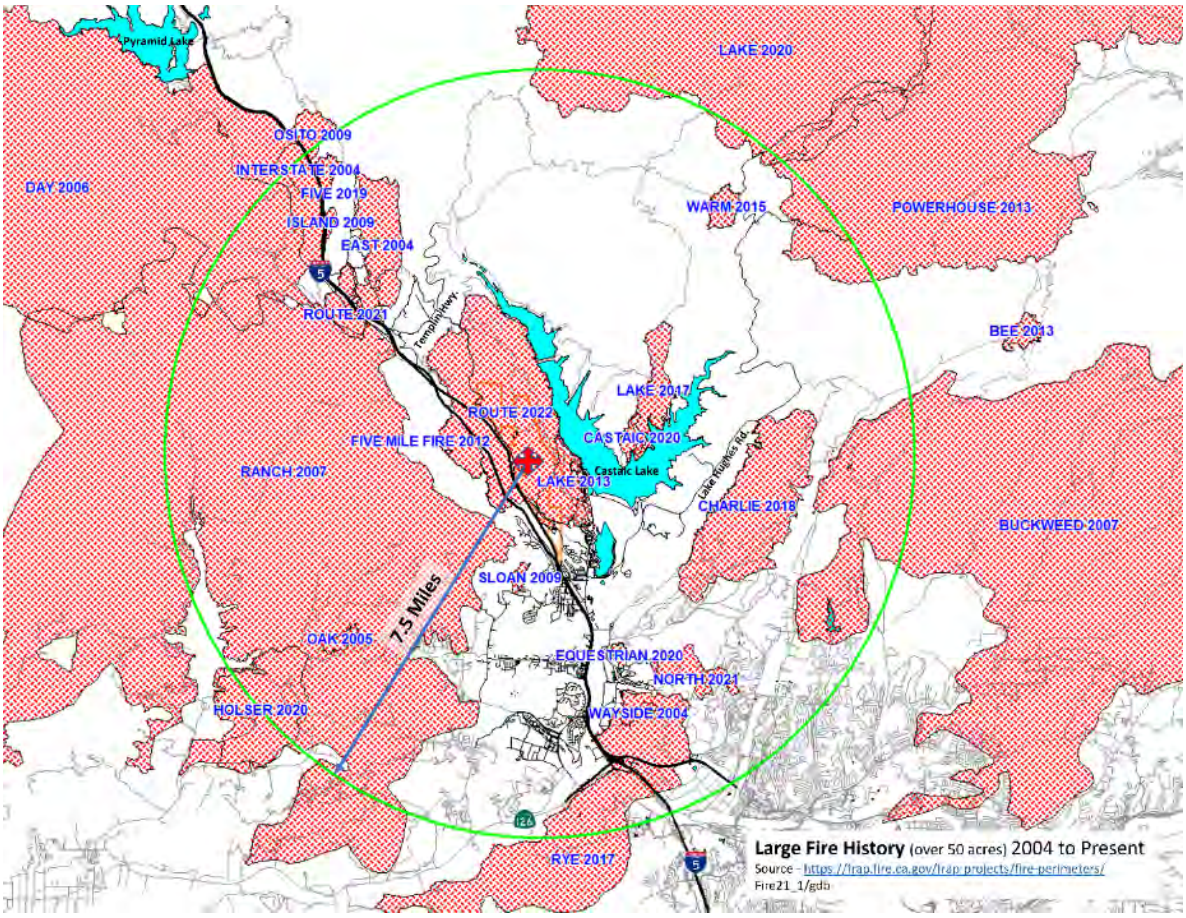


Figure 22 – Large Fire History for the regional area since 2004

Large fires in the area are due to a several issues. Access and topography are part of it. Roads in the lands to the east, west and north of the Project Site have limited access to the areas where these fire burn. The topography is steep and well-vegetated. The general area does not have a large number of fire stations which can arrive quickly in the early stages and fires that occur are generally related to the transportation and infrastructure (powerlines and roads) in the area that provide the ignition sources in many cases. This area is also prone to thunderstorms/lightning which produce strong winds and ignitions without the rainfall necessary to put out the spot fires. All of these factors are covered in more detail later in this report.

The most recent fire to impact the area/Project Site is the Route Fire which started on August 31, 2022. This fire burned approximately 5,208 acres over several days, but the majority of this acreage was consumed in the first operational period (12 hours). The Route Fire started on the west side of the interstate (I-5) at approximately noon. The fire was contained to the west side of the northbound interstate until it carried (spotted) over to the area between the northbound and southbound lanes (large island area) where it quickly established itself and then spotted again over the southbound lanes and into the Project Site. https://fireaviation.com/2022/10/01/report-shows-use-of-four-helicopter-quick-reaction-force-through-the-night-limited-final-size-of-route-fire/

Figure 23, on the next page, provides the final fire perimeter, and an outline of the Project Site and indicates the approximate area of origin north of the terminus of The Old Road and North Red Oak Court.

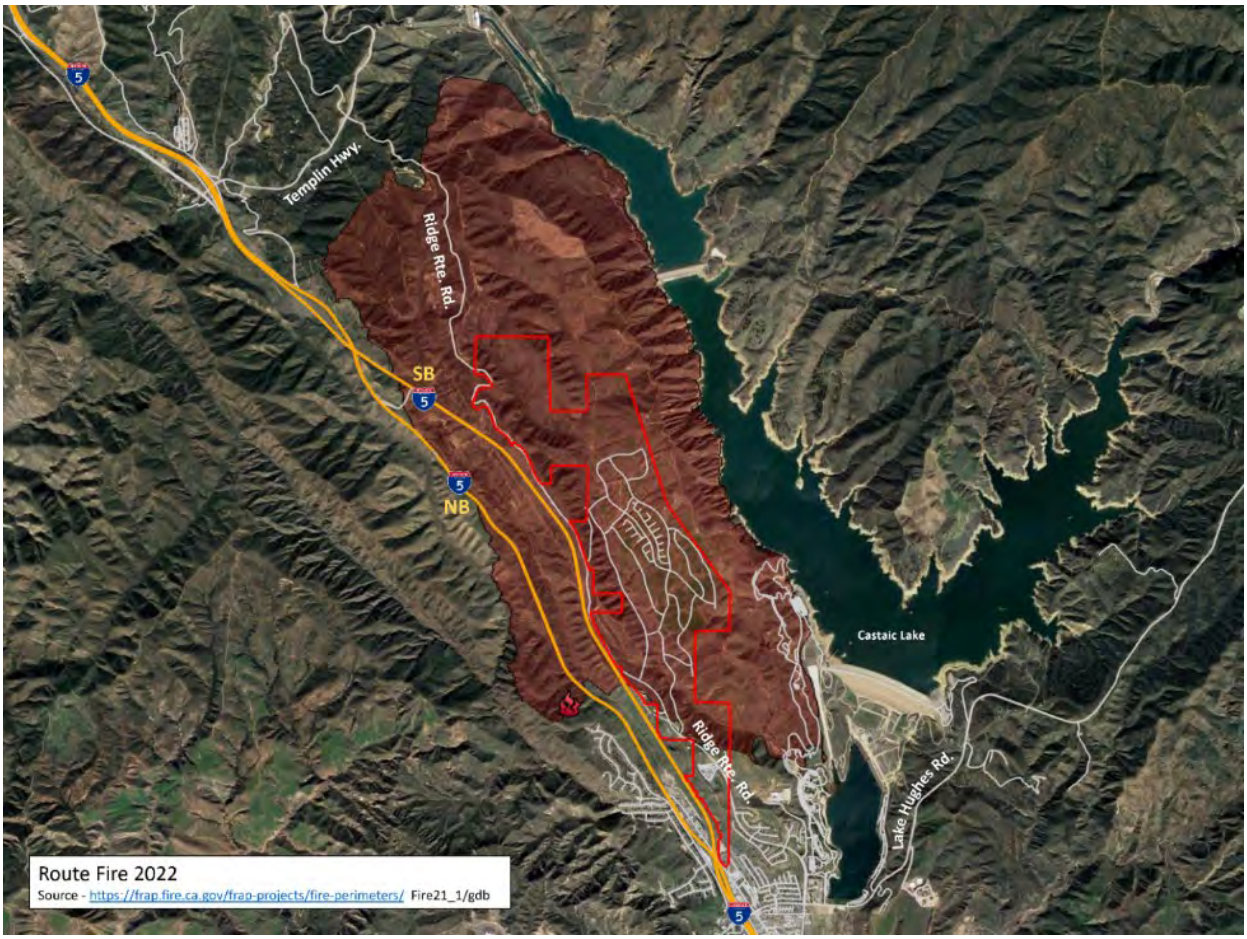
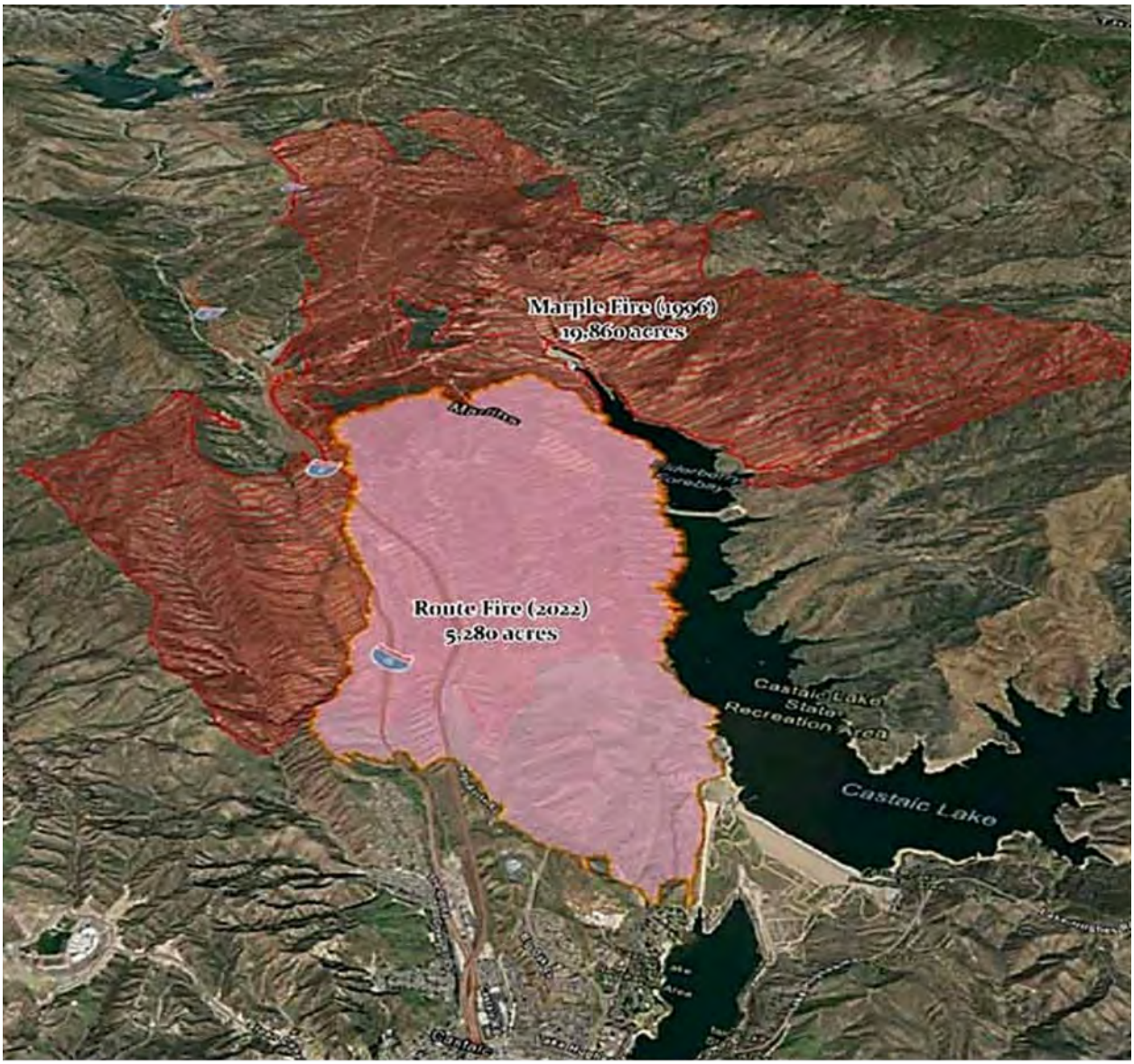


Figure 23 -Route Fire 2022 Map

The fire moved quickly once established in both areas (between northbound/southbound and on the Project Site). The SW/SSW wind pushed the fire to the NE/NNE. The fire progression was stopped to the east by Castaic Lake along the entire eastern flank. Aerial tankers and helicopters were used to keep the fire from moving west into Violin Canyon as it had done on the Marple Fire in 1996 (author's personal observation while working on the Marple Fire in 1996). The Marple Fire was the only fire other than the recent Route Fire (2022) to burn over a majority of the Project Site in the past 50 years.

The Route Fire was stopped in the first 24 hours due to the availability of aircraft and the wind change that occurred after, in the evening and the size and abilities of the initial attack forces. It is impossible to directly compare the two fires as the Marple Fire consumed over 10,000 acres in the first eight hours. Both fires started in late August around noon. Once the Marple Fire burned around the north end of the lake, its eastward progress was no longer suppressed. Additionally, the Marple Fire continued to burn for several operational periods subjecting the control line to the diurnal effects of the onshore/offshore changes taking the fire in different directions at different times and requiring resources to be deployed in all areas simultaneously. https://fireaviation.com/2022/10/01/report-shows-use-of-four-helicopter-quick-reaction-force-through-the-night-limited-final-size-of-route-fire/ The shifting of the onshore and offshore flow reverses the fire direction under these conditions approximately every 12 hours, making the head of the fire bounce back and forth from opposite sides of the site perimeter.

As the Marple Fire burned into the national forest, containment opportunities were reduced, and suppression methods had to be modified to meet the Forest Service's practices. Within the forest, fire is a natural process, and some suppression efforts actually produce more long-term consequences than the fire itself. The two fires are overlayed in the graphic below (Figure 24). Specifics about the Route Fire (most recent fire to burn over the Project Site) will be covered in each section of this report where applicable.



https://fireaviation.com/2022/10/01/report-shows-use-of-four-helicopter-quick-reaction-force-through-the-night-limited-final-size-of-route-fire/

Figure 24 – Comparison of Marple Fire 1996 to Route Fire 2022

Weather

Weather has a significant impact on the ability of a small fire to become a large fire. Within the weather category, wind, relative humidity, temperature, and interaction with the topography are especially impactful.

High temperature, low humidity, and wind combine to create "Fire Weather". In the area of the Project Site, the regional weather has a strong history of extreme Fire Weather to the point where National Weather Service has a specific system used to identify when the extreme conditions are being achieved and additional action should be taken. On its website, CalFire describes as follows:

> *The National Weather Service issues Red Flag Warnings & Fire Weather Watches to alert fire departments of the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity.*
>
> *A Red Flag Warning is issued for weather events which may result in extreme fire behavior that will occur within 24 hours. A Fire Weather Watch is issued when weather conditions could exist in the next 12-72 hours. A Red Flag Warning is the highest alert. During these times extreme caution is urged by all residents, because a simple spark can cause a major wildfire. A Fire Weather Watch is one level below a warning, but fire danger is still high.* Red Flag Warnings & Fire Weather Watches (ca.gov)

Extreme Fire Behavior is a term used by the National Wildfire Coordinating Group (NWCG) for conditions which imply a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

Temperature

Temperature in and of itself does not have a large impact on fire behavior but the effects of temperature on other factors such as Relative Humidity make temperature important to the fire behavior discussion. More direct sunlight increases fuel temperatures and decreases the amount of heat needed to raise the fuel to its ignition temperature but since most wildland fuels must be raised to over 400^{o}F to sustain combustion, the difference of 10 or 20 degrees in the atmospheric temperature has limited direct effect.

Relative Humidity

Relative humidity (RH) indicates how much moisture is in the air. Expressed as a percentage, it provides an objective measurement of the amount of water vapor that is in the air compared to the amount needed to be saturated (100% RH). When RH is low, moisture can be removed from the vegetation at a high rate creating drier vegetation conditions which burn easily and at a faster rate. Fuels (wildland) are categorized by the amount of time (time lag) it takes them to adjust the plant moisture level to the atmospheric level (63% of the difference) in one-hour, ten-hour,

hundred-hour, and thousand-hour fuels. One- and ten-hour fuels have the most impact on the flaming front (active burning) of wildland fires in grass/brush fuels. *For example, a grass fuel (one-hour) could be at a very high level of fuel moisture (90%) due to overnight fog. When the sun comes up and the fog burns off or a dry air mass moves into the area, if the RH where to drop to 20, then in the first hour, the fuel moisture would move from 90% to 45% (63% of the difference between 90% moisture in the fuel and 20% moisture in the air) in the first hour and down to 30% by the end of the second hour and 24% by the end of the third hour. Each time moving 63% of the difference between the fuel moisture and the air moisture.*

Humidity varies with temperature (generally, when temperature increases, humidity decreases; and vice versa). Humidity is important because it affects fuel moisture content and therefore, the fuel's combustibility. This is the reason that hot, dry Santa Ana wind conditions tend to create Fire Weather and increase the level of risk as they continue to impact the fuels for serval days, weeks, or months in the dry season for southern California. Hot, dry, and windy are a bad combination.

Wind

Wind is the most obvious factor for creating Extreme Fire Behavior. While Extreme Fire Behavior is possible without extreme wind, such as a fuel- driven, plume-dominated wildfire, they are often found together. The Station Fire, in 2009, was a prime example of a fuel and low relative humidity driven fire, with much of the fire growth occurring in the absence of significant winds (The Station Fire: An Example of a Large Wildfire in the Absence of Significant Winds (weather.gov)). This was not what is normally seen in the recent history of fires in Southern California. Wind is normally one of the prime factors. The reason for this is that, in fine fuels like grasses, wind can accelerate the fire to the maximum flame length and Rate of Spread (ROS) with little wind compared to the wind speeds that are possible under fire weather conditions.

One method of illustrating this fact is to show grass wildland fuels (dry climate) at various wind speeds and look for the point at which the fire from a specific fuel reaches its maximum energy output (all fuel consumed; no additional fuel to burn). Using the BehavePlus software from the U.S. Forest Service to complete the comparison, an extreme moisture scenario was used (3% for one-hour fuels, 4% for ten-hour fuels, 5% for 100-hour fuels, 30% for live herbaceous fuels and 50% for live woody fuels) for the fuel moisture levels in the time lag dead and live fuels. Three dry climate grass fuels were used (GR1, GR2. GR4), which are the fuels normally found in southern California for grasses. The results (Figure 25, on the next page) indicate that the GR1 fuel reaches the maximum flame length and ROS at 5 mph (midflame wind speed), while the GR2 fuel reaches maximums at 13 mph and the GR4 at 25 mph. For this example, the 20-foot winds are two times the midflame wind speed. 20-foot winds are defined as sustained winds averaged over a 10-minute period and measured 20 feet above the average height of nearby vegetation. (This is the standard reported by the Remote Automated Weather Stations (RAWS) owned by land management agencies and used in the National Fire Danger Rating System (NFDRS)). Using the 20-foot winds at two times the midflame wind speed allows for the perspective of how little wind is needed on a flat plain. When the slope is added, the GR1 is at maximum without wind, the GR2 drops to 9 mph and the GR4 drops to 22 mph. Figure 25 provides the output from the Behave modeling for this example.

Max ROS
Head Fire
Surface Fire Flame Length (ft)

Midflame Wind Speed	Fuel Model		
mi/h	gr1	gr2	gr4
0	0.6	1.4	2.7
5	2.6	6.3	11.8
10	2.6	9.9	18.6
11	2.6	10.6	19.8
12	2.6	11.2	21.0
13	2.6	11.6	22.1
14	2.6	11.6	23.2
15	2.6	11.6	24.3
16	2.6	11.6	25.4
17	2.6	11.6	26.4
18	2.6	11.6	27.4
19	2.6	11.6	28.5
20	2.6	11.6	29.4
21	2.6	11.6	30.4
22	2.6	11.6	31.4
23	2.6	11.6	32.3
24	2.6	11.6	33.2
25	2.6	11.6	33.7
26	2.6	11.6	33.7

Max ROS with 100% slope
Head Fire
Surface Fire Flame Length (ft)

Midflame Wind Speed	Fuel Model		
mi/h	gr1	gr2	gr4
0	2.6	7.6	14.3
4	2.6	9.1	17.0
5	2.6	9.6	17.9
6	2.6	10.1	18.9
7	2.6	10.6	19.8
8	2.6	11.1	20.8
9	2.6	11.6	21.8
10	2.6	11.6	22.7
11	2.6	11.6	23.7
12	2.6	11.6	24.7
13	2.6	11.6	25.6
14	2.6	11.6	26.6
15	2.6	11.6	27.5
16	2.6	11.6	28.4
17	2.6	11.6	29.3
18	2.6	11.6	30.2
19	2.6	11.6	31.1
20	2.6	11.6	32.0
21	2.6	11.6	32.9
22	2.6	11.6	33.7
23	2.6	11.6	33.7
24	2.6	11.6	33.7
25	2.6	11.6	33.7
26	2.6	11.6	33.7

Figure 25 – BehavePlus Outputs for Rate of Spread in dry climate grass fuels

The regional area around the Project Site has two (2) Remote Access Weather Stations or RAWS, which are monitored/ maintained by a governmental agency to measure, record, and transmit Fire Weather data on a routine basis over extended periods of time. Most of these RAWS sites have been in place for many years, if not decades.

These sites are good for establishing the long-term wind (speed, direction, and gusts), temperature, and RH.

The Del Valle and Saugus RAWS are located to the south of the Project Site. The Del Valle RAWS is approximately 5 miles to the SSW, and the Saugus RAWS is approximately 8 miles to the SE of the southern boundary of the Project Site. The locations are provided in Figure 26 (next page) as well as four locations closer to the Project Site, three of which are weather stations maintained and monitored by Southern California Edison (SCE) as part of the company's Wildland Fire Safety program and one private weather station which is part of the Citizen Weather Observing Program (CWOP) sponsored by the National Weather Service. The company uses data to make decisions on Public Safety Power Shutoff (PSPS) actions. The data is available to safety personnel and the general public in nearly "real-time". Most of these SCE sites are mounted on utility poles owned by the company.

The RAWS sites have over 10 years of recent data, while the SCE sites have all come online within the past 5 years and some in the area have been installed in the past year (those have not been used here). Of note, the SE129 site was destroyed in the Route Fire (2022). It has data up to the morning of the fire. The other three SCE/CWOP sites and the two RAWS have data through the point at which the databases were downloaded (after the Route Fire).

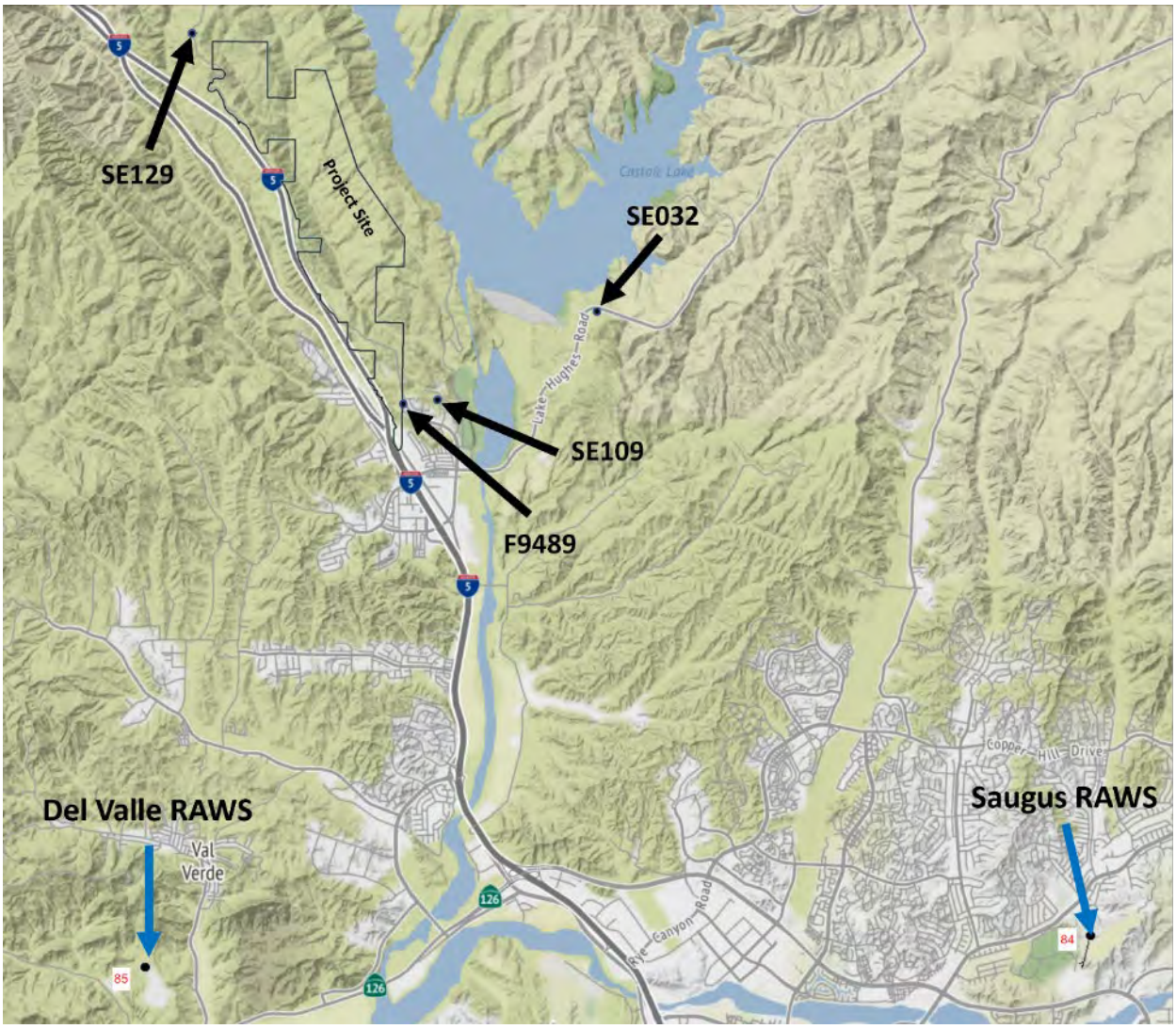
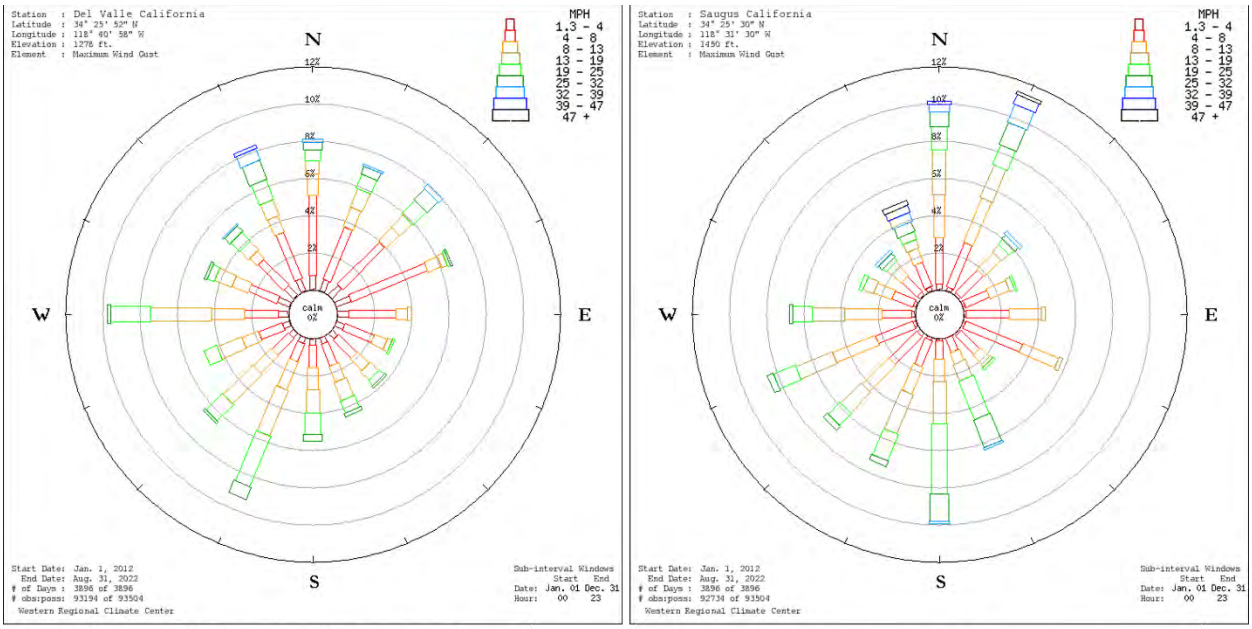


Figure 26 – Location map for location weather collection sites

The data from the RAWS sites shows regional data is fairly consistent. Both sites have the predominant onshore flow (S to W) and the stronger winds from the offshore flow (NW to NE). Both RAWS sites are located in areas that are not wind-protected but are also adjacent to topographic features which have some influence on the direction and speed of the wind. They are at the same general elevation (Del Valle 1,278'/Saugus 1,450'). Each site has over 92,700 datapoints out of 93,504 possible data points within the analysis timeframe (10 years).

Data tables and wind rose graphics are provided for both in Figure 27, on the next page. Both RAWS sites are near the Santa Clarita River drainage and are orientated to topography in a manner that is slightly different from the Project Site.



Del Valle California - Wind Frequency Table (percentage)

Latitude : 34° 25' 52" N
Longitude : 118° 40' 58" W
Elevation : 1278 ft.
Element : Maximum Wind Gust

Start Date : Jan. 1, 2012
End Date : Aug. 31, 2022
# of Days : 3896 of 3896
obs : poss : 93194 of 93504

Sub Interval Windows
Start End
Date Jan. 01 Dec. 31
Hour 00 23

(Greater than or equal to initial interval value and Less than ending interval value.)

Range (mph)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
1.3 - 4	0.7	0.6	0.7	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.7	0.7	0.7	8.6
4 - 8	4.3	3.0	3.2	4.4	2.5	1.7	1.4	1.2	1.2	1.0	1.2	1.4	1.8	1.7	1.9	2.7	34.7
8 - 13	1.2	1.1	1.0	0.8	0.6	0.7	0.9	0.9	1.2	1.6	1.3	0.9	1.8	0.9	0.6	0.9	16.5
13 - 19	0.7	1.1	0.9	0.3	0.2	0.3	0.6	1.0	1.2	2.6	2.3	1.4	3.3	1.0	0.6	0.9	18.6
19 - 25	0.6	0.8	1.0	0.2	0.1	0.1	0.4	0.7	1.2	2.9	1.2	0.7	2.1	0.4	0.7	1.1	14.2
25 - 32	0.4	0.4	0.8	0.1	0.0	0.0	0.1	0.2	0.3	0.7	0.2	0.1	0.2	0.2	0.4	1.1	5.2
32 - 39	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	1.7
39 - 47	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4
47 -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total(%)	8.2	7.2	8.1	6.7	4.1	3.3	3.8	4.5	5.5	9.3	6.5	4.9	9.8	4.9	5.0	8.2	100.0
Calm (<1.3)																	0.0
Ave Speed	9.9	11.3	12.8	7.1	7.0	7.7	10.3	12.1	13.5	16.0	13.4	12.1	13.8	10.7	11.6	15.2	12.0

Predominant Flow

Saugus California - Wind Frequency Table (percentage)

Latitude : 34° 25' 30" N
Longitude : 118° 31' 30" W
Elevation : 1450 ft.
Element : Maximum Wind Gust

Start Date : Jan. 1, 2012
End Date : Aug. 31, 2022
# of Days : 3896 of 3896
obs : poss : 92734 of 93504

Sub Interval Windows
Start End
Date Jan. 01 Dec. 31
Hour 00 23

(Greater than or equal to initial interval value and Less than ending interval value.)

Range (mph)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
1.3 - 4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	2.4
4 - 8	2.5	2.5	1.7	1.4	2.3	3.3	1.4	0.8	1.0	1.5	2.1	2.1	1.6	1.2	1.1	1.4	27.9
8 - 13	2.3	2.6	1.3	1.1	1.7	2.1	0.7	0.6	1.2	1.6	2.0	2.5	2.0	1.0	0.7	0.8	24.2
13 - 19	2.4	1.9	0.5	0.3	0.2	0.2	0.2	0.9	2.3	2.3	1.6	2.1	1.7	0.6	0.3	0.5	18.0
19 - 25	1.3	1.1	0.4	0.1	0.1	0.0	0.1	2.2	3.8	1.5	0.9	1.3	1.1	0.2	0.2	0.4	14.7
25 - 32	0.8	1.3	0.3	0.0	0.0	0.0	0.1	1.6	1.5	0.3	0.3	0.3	0.2	0.1	0.3	0.6	7.6
32 - 39	0.4	1.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.5	2.9
39 - 47	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.5
47 -	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8
Total(%)	10.2	11.3	4.5	3.1	4.5	5.8	2.7	6.5	10.0	7.4	7.1	8.6	6.8	3.4	3.1	5.0	100.0
Calm (<1.3)																	0.0
Ave Speed	14.7	17.2	12.9	9.0	8.1	7.8	9.7	19.2	18.1	14.0	12.1	12.7	12.6	11.0	13.7	19.1	14.0

Predominant Flow

Figure 27 - Output data/graphics for RAWS locations (Del Valle and Saugus)

Using outputs from FlamMap (fire behavior modeling software), it is possible to see how the wind interacts with the topography. In Figure 28, on the next page, the wind directions are imposed over an elevation map (red indicating lower elevations through green indicating higher elevations) to show how the winds are channeled by the mountains and valleys. Note that to the north of Lake Piru (left side of the graphic), wind direction is more impacted in the offshore (NE wind) flow than in the onshore (SW wind) whereas the offshore flow is more impacted in the area of Highway 126 within the Santa Clarita River drainage. This wind channeling effect has an impact on the fire spread direction. When viewing the RAWS data, this is a critical issue to understand. These are the 20-foot winds (wind height) which are adjusted to a midflame wind speed in the modeling. The most radical wind direction changes occur in wind-sheltered or shadowed areas. This issue will be addressed later in this report.

The Project Site is not significantly impacted by either of these two wind directions (Onshore/Offshore) with respect to changes in wind direction at an overall level (wind channeling is not pronounced on or near the Project Site). Site-specific locations may have more localized wind channeling impacts, and these will be addressed later in this report specific to the Project Site and the location being addressed.

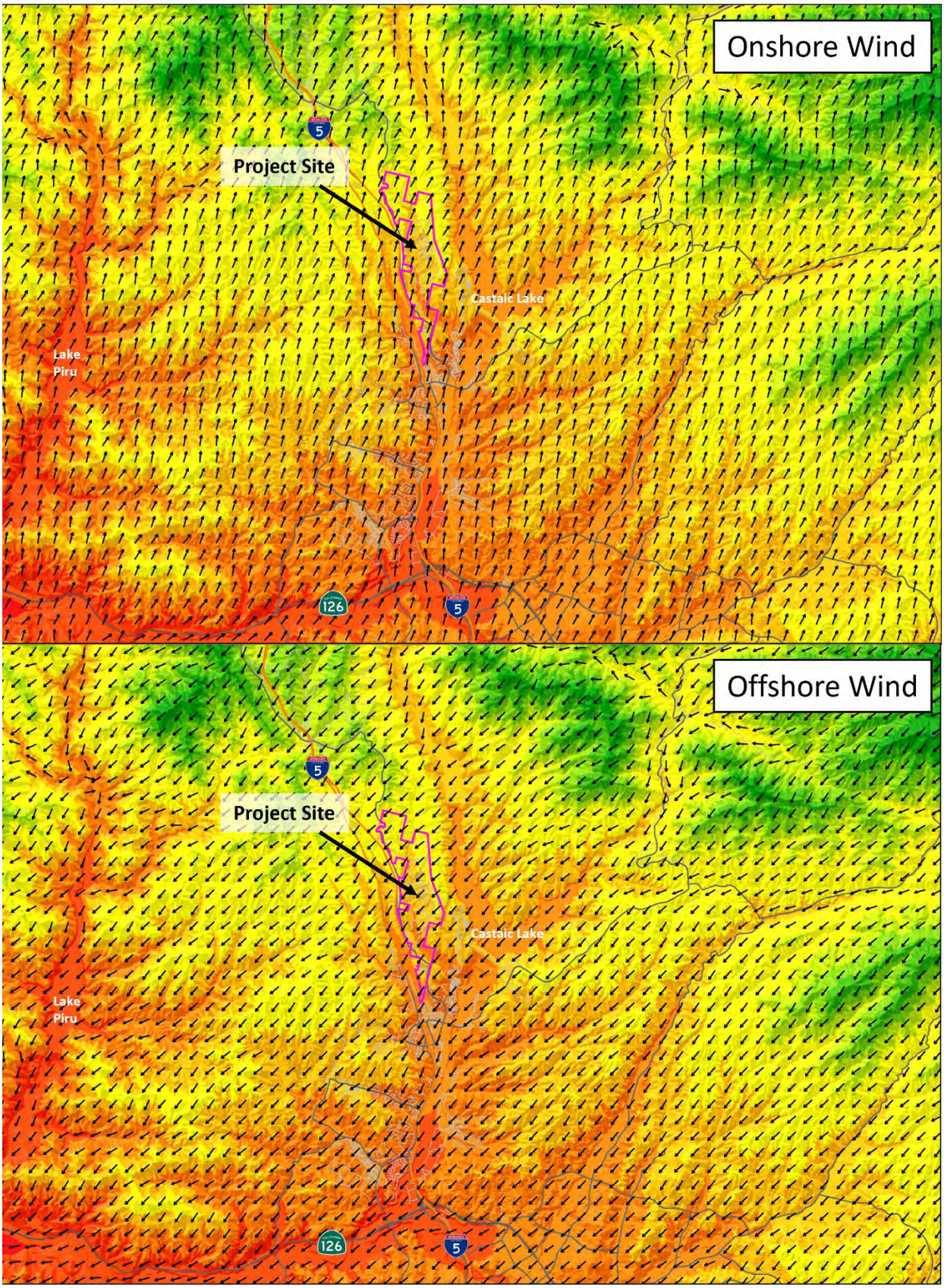


Figure 28 – Onshore/Offshore Winds over the Project Site

Four additional weather data collection points (not RAWS) shown below (Figure 29), provide an understanding of why they will have different wind data from the same time periods as compared to the RAWS sites. SE109 and SE032 are on north-facing slopes while FW9489 is on a south-facing slope and SE129 is on a west-facing slope. All are on a road or near a house. FW9489 is at the top of a slope, SE129 and SE032 are near the top of a slope, and SE109 is about mid-slope but in a narrower canyon than the other three. SE032 is the most exposed (right off the lake), and FS9489 is the most protected, with homes to the north and east of the site. The three SCE sites shown below are mounted on power poles and the FS9489 site is a private weather station that is a part of the CWOP. CWOP runs data checking and analysis on its site to increase the quality of the data.



Figure 29 – Non RAWS weather data locations)

Below, in Figure 30, is a summary of the weather data for the four non-RAWS sites. The highest wind speed and wind gusts are found as SE032, as would be expected given its exposed position. The lowest wind data is provided by FW9489 as discussed previously, due to its protected position and configuration.

All four sites have the minimum and maximum values shown along with the range eliminating the top and bottom 1%. All of these sites have been in place for less than five years with FW9489 only being in service for 1.6 years (data available). SE129 data stops in the morning of the Route Fire 2022 as the site was destroyed by the Route fire and is currently under replacement. All four sites were functioning on the day of the fire and the remaining three continue to function as of this report. Overall, the four locations have very similar findings.

SE129		Temp	RH	Wind	Gust
	Average	64.8	43.8	7.3	12.3
	Min	32.06	3.24	0	0
	Max	110.5	100	35.82	58.3
	1% value	38.86	7.66	0.04	0.7
	99% value	94.1	99.7	22.79	35.9
183,622	values				
3.5	years	Data ends prior to Route Fire			

SE032		Temp	RH	Wind	Gust
	Average	64.3	48.0	6.5	10.8
	Min	33.6	3.96	0	0
	Max	112.1	100	43.4	69.2
	1% value	39.63	8.49	0.25	1.2
	99% value	95.79	99.4	25.43	37.4
244,161	values				
4.6	years				

SE109		Temp	RH	Wind	Gust
	Average	65	48	3.1	7
	Min	28.8	4.4	0	0
	Max	115	99.4	23.5	45.1
	1% value	38.8	8.6	0	0
	99% value	100.2	96.2	13.3	25.3
203,196	values				
3.9	years				

F9489		Temp	RH	Wind	Gust
	Average	68.2	45.7	3.8	4.7
	Min	32	4	0	0
	Max	115	99.0	27	33
	1% value	41	9.0	0	0
	99% value	100	99	16.0	18.0
168,876	values				
1.6	years				

Figure 30 -Weather Data Summaries for non-RAWS locations

The three SCE sites can provide additional insight when the data is processed by direction and speed. Figure 31, on the next page, shows a similar trend with respect to wind direction and speed. SE032 has a maximum wind gust of 69.2 mph, but the 99th percentile is 37.4 in Figure 30 and Figure 31 provides the reason. Only five data points exceeded 60 mph, and only 34 datapoints exceeded 50 mph out of 244,161 data events. SE129 has similar data with a maximum gust of 58.3, a 99th percentile of 35.9, and only 34 datapoints over 50 mph out of 183,622 data points. Data points within the upper and lower one percent of the database are not

normally used as they tend to represent data outliers which do not fit within the statistical norms. It is not possible to know if these outliers are anomaly or data artifacts (a data flaw caused by equipment, techniques or conditions). Understanding the drop from the peak to the 99th percentile or from the minimum value to the 1st percentile provides some insight into the nature of the dataset and provides for a more accurate/reliable value for use in presenting the impacts of the dataset on the overall modeling process.

SE032			Wind Gust (mph)						
% of Total	Count	Cardinal	<20	>20	>30	>40	>50	>60	>70
6.7%	16,445	N	14,491	1,954	179	11	-	-	-
13.6%	33,236	NNE	28,774	4,462	779	58	8	-	-
13.2%	32,113	NE	27,655	4,458	1,358	195	43	4	-
5.6%	13,620	ENE	13,068	552	44	7	2	-	-
2.0%	4,866	E	4,850	16	-	-	-	-	-
1.7%	4,244	ESE	4,244	-	-	-	-	-	-
4.2%	10,348	SE	10,343	5	-	-	-	-	-
4.7%	11,582	SSE	11,569	13	-	-	-	-	-
3.8%	9,265	S	9,233	32	1	-	-	-	-
8.2%	20,033	SSW	19,236	797	24	-	-	-	-
15.1%	36,966	SW	35,417	1,547	48	4	-	-	-
4.4%	10,726	WSW	10,596	130	-	-	-	-	-
1.5%	3,735	W	3,702	33	2	-	-	-	-
2.2%	5,431	WNW	4,921	510	77	9	-	-	-
7.1%	17,336	NW	8,243	9,093	3,113	419	15	-	-
5.7%	13,816	NNW	7,536	6,280	3,088	644	34	1	-
0.2%	399	""							-
100.0%	244,161		213,878	29,882	8,713	1347	102	5	-
			87.6%	12.2%	3.6%	0.6%	0.0%	0.0%	0.0%

Offshore winds are highlighted in light red, and the Onshore winds in light yellow

SE129			Wind Gust (mph)						
% of Total	Count	Cardinal	<20	>20	>30	>40	>50	>60	>70
7.8%	14,386	N	13,373	1,013	267	17	-	-	-
3.6%	6,678	NNE	6,224	454	18	-	-	-	-
5.7%	10,458	NE	8,267	2,191	244	11	-	-	-
6.6%	12,086	ENE	11,264	822	77	15	1	-	-
4.5%	8,205	E	8,137	68	5	-	-	-	-
3.2%	5,908	ESE	5,881	27	2	-	-	-	-
3.2%	5,907	SE	5,867	40	-	-	-	-	-
5.5%	10,178	SSE	10,133	45	1	-	-	-	-
8.1%	14,905	S	14,563	342	4	-	-	-	-
13.1%	24,127	SSW	22,665	1,462	22	-	-	-	-
3.6%	6,697	SW	6,397	300	15	-	-	-	-
1.5%	2,780	WSW	2,687	93	5	-	-	-	-
1.3%	2,300	W	2,124	176	4	-	-	-	-
3.0%	5,461	WNW	4,204	1,257	226	19	-	-	-
14.4%	26,470	NW	13,277	13,193	2,925	345	20	-	-
14.0%	25,658	NNW	17,899	7,759	2,441	266	13	-	-
0.8%	1,418	Null	-	-	-	-	-	-	-
100.0%	183,622		152,962	29,242	6,256	673	34	-	-
			83.3%	15.9%	3.4%	0.4%	0.0%	0.0%	0.0%

Offshore winds are highlighted in light red, and the Onshore winds in light yellow

SE109			Wind Gust (mph)						
% of Total	Count	Cardinal	<20	>20	>30	>40	>50	>60	>70
3.9%	7,967	N	7,820	147	4	-	-	-	-
2.3%	4,595	NNE	4,568	27	-	-	-	-	-
2.8%	5,647	NE	5,469	178	3	-	-	-	-
5.6%	11,421	ENE	9,599	1,822	168	15	-	-	-
4.1%	8,317	E	7,754	563	20	0	-	-	-
3.1%	6,227	ESE	6,174	53	2	-	-	-	-
7.2%	14,601	SE	14,599	2	-	-	-	-	-
7.3%	14,901	SSE	14,898	3	-	-	-	-	-
5.7%	11,618	S	11,608	10	1	-	-	-	-
4.5%	9,114	SSW	9,113	1	-	-	-	-	-
3.6%	7,294	SW	7,294	-	-	-	-	-	-
3.8%	7,662	WSW	7,661	1	-	-	-	-	-
7.1%	14,454	W	14,450	3	-	-	-	-	-
12.3%	25,052	WNW	24,827	225	29	0	-	-	-
16.4%	33,286	NW	30,610	2,676	187	1	-	-	-
8.5%	17,309	NNW	15,980	1,329	108	1	-	-	-
1.8%	3,731	Null	0	-	-	-	-	-	-
100.0%	203,196		192,424	7,040	522	17	-	-	-
			94.7%	3.5%	0.3%	0.0%	0.0%	0.0%	0.0%

Figure 31 – Directional Wind Speed Summaries from SCE weather data sites

In Figure 31, on the previous page, the offshore winds are highlighted in light red, and the onshore winds in light yellow. These are the winds that are most likely to occur during a wildland fire. All nonhighlighted areas are less than 6% of the data set for that direction.

From the data derived from the six sites, assumptions about the model inputs for the fire behavior modeling can be created. For this report, the minimum fuel moisture for 1-hr fuels will be 3% based on the RH values shown in Figure 30 as found at the referenced sites.

Wind assumptions, based on the values in Figure 31, will be modeled from the S, SSW, and WSW at 40 mph combined with N, NNE, and NE at 70 mph as the "worst-case" scenarios.

Intensity

The intensity of a wildfire is measured in the energy release expected from the flaming front of the fire (active burning). Intensity is greatly affected by topography, weather, and the amount of fuel available to burn. For example, a brush fire in heavy chaparral in a steep canyon can produce a greater wildfire intensity than short grass fuels on flat ground. Wildfire intensity is measured in units of heat transfer per length of the fire edge within the fire modeling community but is more often expressed in terms of flame length for easier understanding in training and discussion with those who fire fight fires and those who must live with the potential of wildland fires.

Fire intensity is the primary wildfire characteristic related to potential fire effects. Typically, the greater the intensity the greater the loss, but this is not always the case. (USDA Forest Service Gen. Tech. Rep. RMRS-GTR-315. 2013, page 5)

> The factors affecting wildfire intensity include the elements of the fire behavior triangle (fuel, weather, and topography) as well as spread direction (heading, flanking, backing, etc.). At a basic level, wildfire intensity can be assessed for a point, stand, or landscape without consideration of fire spread by assuming that a fire occurs at the given location(s) under specific weather, fuel moisture, and fire spread parameters (heading, flanking, or backing). Typically, this is assessed as the near-maximum potential (for example, heading fire under 97th percentile fuel moisture and wind conditions).
>
> There may be a very low probability of a wildfire occurring under these conditions in any particular area, but nevertheless, this level of assessment provides useful information about the potential wildfire behavior that different areas of a landscape are capable of producing. At the landscape scale, this type of wildfire hazard assessment may also be used to identify where on a landscape there is the potential to meet or exceed specific wildfire behavior thresholds, thus aiding the identification and prioritization of management opportunities. (USDA Forest Service Gen. Tech. Rep. RMRS-GTR-315. 2013, pages 7-8)

In order to assess potential intensity, it is necessary to examine the fuels, topography, and configuration in order to accurately assess both the hazard and the risk to the adjacent areas. The topography includes elevation, slope, aspect, and features, such as canyons, valleys, or rivers.

Fuels (wildland and built)

Wildland fuels on and near the Project Site consist mainly of grass and shrubs. Figure 32, below and Figure 33, on the next page, provide illustrations of the fuels on and near the Project Site. Below, the fuels are classified by number in categories as listed in the legend. In each category, the amount of fuel is generally greater as the number increases. Grass fuel 101 has less combustible fuel available than grass fuel 102. The 100's are grasses, the 120's are grass/shrub mixtures, the 140's are shrub fuels, the 160's are understory fuels, and the 180's are tree litter fuels. These all apply to surface fuels (within 6' of the ground), as canopy fuels are dealt with separately in other modeling modules. The Project Site (shown here with the Partial Creek Avoidance alternative overlaid) is mostly grass and grass/shrub fuels with some areas of shrub-only fuel. Canopy fuels are not predominant. Fuels are assessed in 30-meter grids with the predominant fuel type within the grid representing the entire grid.

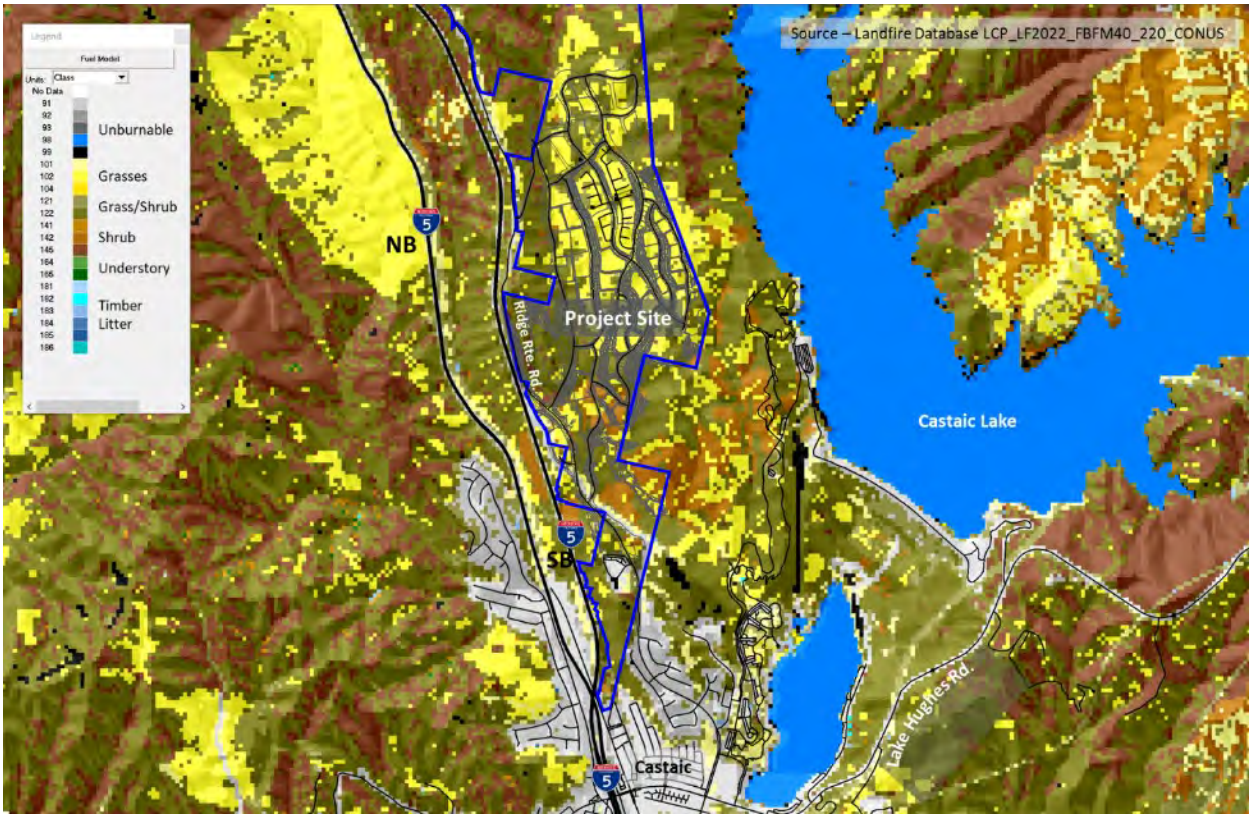


Figure 32 – Wildland Fuels Map

The site is more specifically covered with three types of wildland fuels (as shown in Figure 33, on the next page) Ruderal Grassland and Meadows, Southern California Coastal Scrub, and South California Dry-Mesic Chaparral according to the most recent downloadable Landfire database. These fuel types are also consistent with the finding of the SEIR which was provided in Figure 10 on page 16 of this report. The legend in Figure 33 has been simplified to the Project Site with arrows indicating the predominant wildland fuels.

The existing vegetation type assessment was completed prior to the Route Fire 2022 and is representative of the fuel found during the site visit, which is annotated by location in Appendix

A of this report. The fuels found in the current Landfire Database Landscape file will be used in the modeling for this report (LCP_LF2022_FBFM40_220_CONUS). Developed areas to the south and southwest of the Project Site are at a distance that does not make them a direct impact on wildfire fuel, but they do provide a fuel break from the native fuels and are important to the modeling. They are also categorized as "non-burnable" for the most part. This will be discussed later in the fire behavior section of this report.

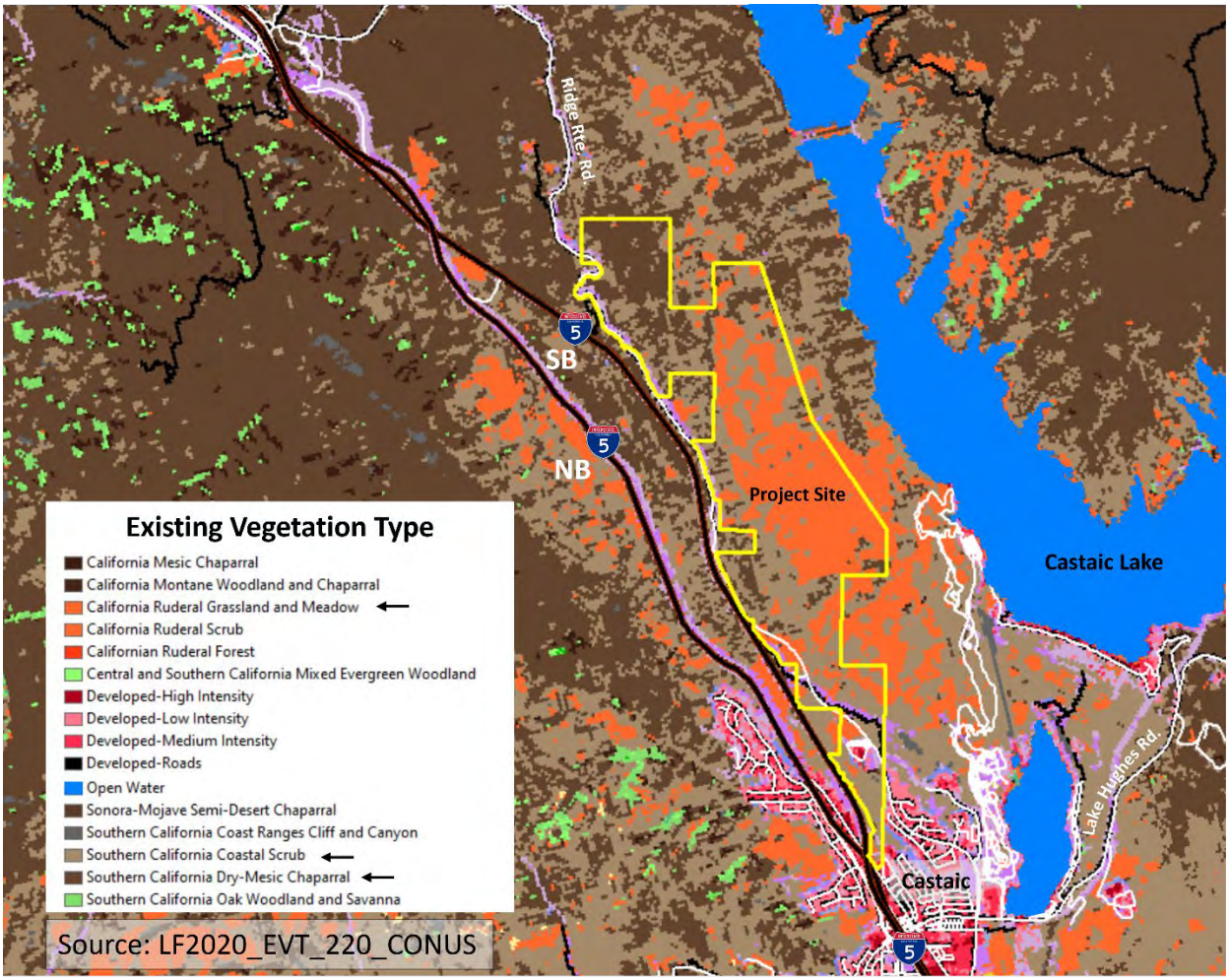


Figure 33 – Existing Vegetation Type Map

Slope

Slope can influence how a fire will move up or down hills. A fire that ignites at the bottom of a steep slope will spread much more quickly upwards because it can pre-heat the upcoming fuels with rising hot air. The upward drafts are more likely to create spot-fire conditions. In the absence of winds, fires usually move faster uphill than downhill, so the steeper the slope, the faster a fire moves. Wind can overpower the slope factor, but generally steeper slopes result in more extreme fire behavior. If the slope is below a site, it will have a more significant impact on the site than if the slope is moving up and away from the site.

Slope can be measured in degrees or percentages. A 45-degree angle is a 100% slope because it rises one foot for each linear foot of the slope. Figure 34, on the next page, provides an

illustration of the slopes around the Project Site prior to grading. The slope percentages shown in the graphic are the average for the 30-meter grid that is displayed for that area. In the graphic one of the possible configurations is provided for reference. The slopes within the development area will be changed during the grading process and, for the most part, will be reduced in steepness or averaged over a larger area. For the purposes of this report, the portions of land in the native interfaces where the wildland fires could be burning are the "area of interest" as they will not be modified and will retain the native fuels.

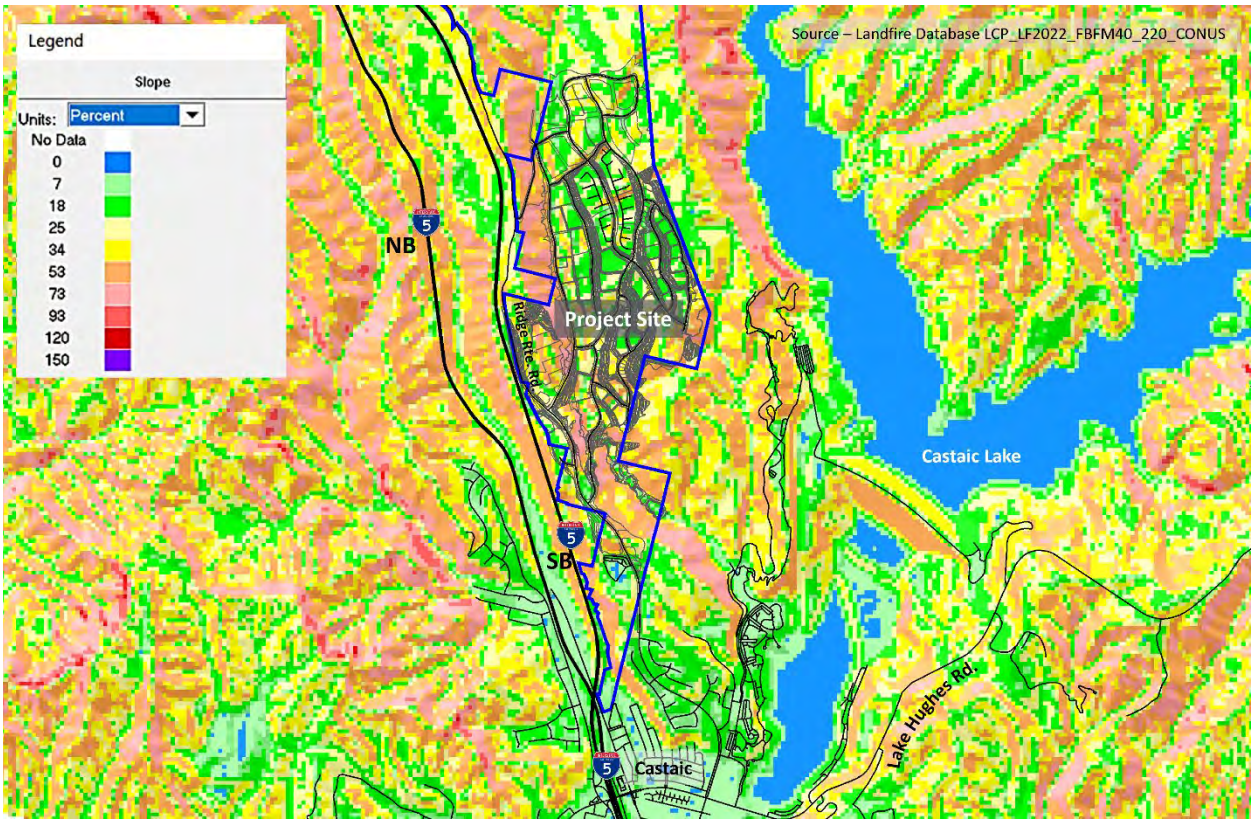


Figure 34 – Slope Map

When averaged over the 30-meter grids, there are no areas with slopes over 80 percent in the interface areas of the Project Site. The values depicted below in Figure 34, are the values that are used in the fire modeling for this report.

Aspect and Elevation

Aspect is the compass direction the slope faces. Elevation and aspect can determine how hot and dry a given area will be. Aspect, in particular, often dictates the amount of direct sunlight that wildland fuels will receive in areas where slopes are steep enough to cast shadows. South aspects tend to get more sun than any other aspect, and north aspects, if the slope is significant enough, can be sheltered from the sun's heat and drying effects. This is why, under the right conditions, fuel loading on the northern aspects of some drainages tend to have more fuel. An example from the Project Site is provided in Figure 35 on the next page.

The National Wildfire Coordinating Group (NWCG) speaks to the issue of south-facing slopes in the S190 (Introduction to Wildland Fire Behavior) training materials. It states, "In the Northern

Hemisphere, the slopes facing south receive direct sun rays and become hotter than the slopes facing any other direction. The higher temperature on the southern exposures results in lower humidity, rapid loss of fuel and soil moisture, and drier, lighter, flashy fuels such as grass. All of these things add together to make southern slopes more susceptible to fires than northern slopes." This statement about northern/southern slopes does not apply to wind-driven fires, only slope and fuel-driven fire. When winds are from the N or NE and align with the heavier fuels on the north slopes, the possibility of extreme wildland fire behavior is increased exponentially. (*S190 - Introduction to Wildland Fire Behavior, Module 2: Principles of Wildland Fire Behavior, Topic 2: Topography, Aspect, p3,* https://training.nwcg.gov/classes/S190/508Files/071231_s190_m2_508.pdf)



Figure 35

The Aspect Map (Figure 36, on the next page) provides an illustration of how the topography will interact with the Project Site. One of the possible alternatives is provided for reference. To the west, aspects are primarily E and SE, and to the East, they are primarily W aspects to the ridgeline above the Project Site, where they transition to E and SE. The north end of the Project Site is mostly S and SW aspects and to the South of the development area, it is extremely varied.

In the general areas of the Project Site, the ridgelines run N/W with faceted smaller drainages running perpendicular to the ridgeline. This configuration is visible on the Elevation Map (Figure 37, on the next page). It shows the Project Site rising up from the south with higher ridgelines to the west and east. The highest point in the Project Site is at the northern boundary in an area that will be developed. It touches the 2,400-foot contour on the USGS topographic map. The lowest point in the Project Site is at the south, where Grasshopper Creeks exits the Project Site at approximately 1,250-foot elevation. The difference is considerable, but it is not enough nor is it in an elevation band that dramatically changes the types of wildland fuels available to burn. All of the adjacent wildland fuels remain "soft chaparral" which generally grows below a 2,500-foot elevation.

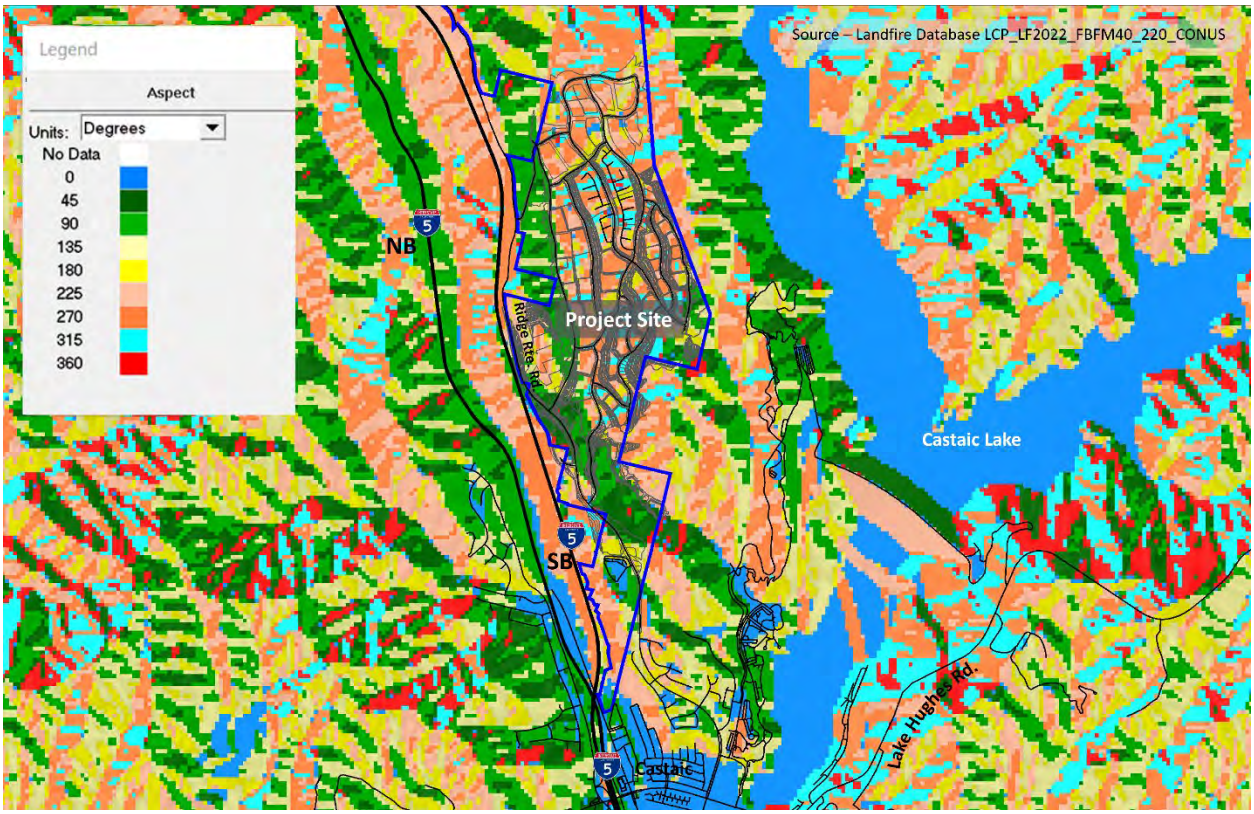


Figure 36 – Aspect Map

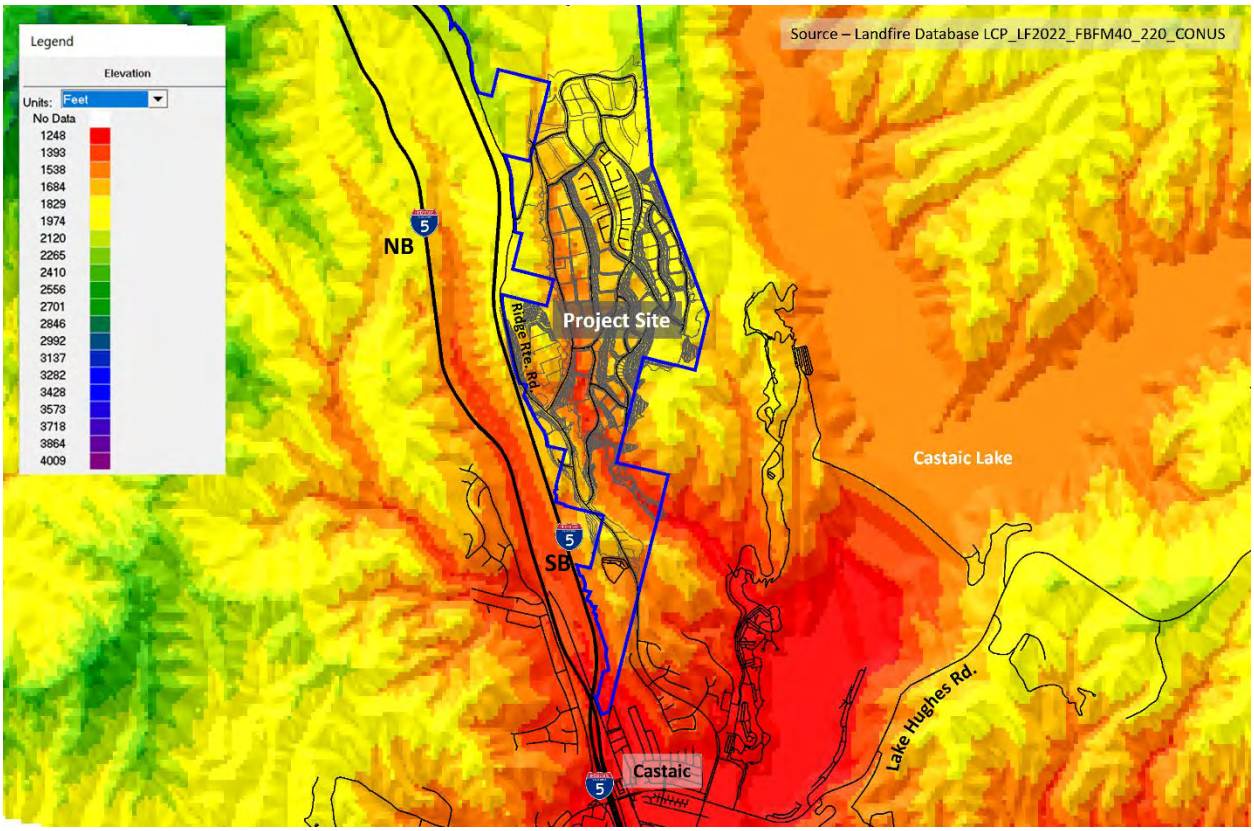


Figure 37 – Elevation Map

Weather

The data from the previously discussed data sites provide the needed assumptions for the fire modeling. In addition to the what (data), it is important to understand the why. For the Project Site, the wind has the largest impact on the amount of risk that can be expected from wildland fires. The topography, fuels, and configurations of the interface between the Project Site and the remaining native vegetation are relatively stable (changes are mostly over longer timeframes) whereas weather changes rapidly and often throughout the day, week, months and seasons.

In the Project Site area, wind tends to have a large impact on the temperature, relative humidity, fuel moisture, and direction of fire travel. Winds for the Project Site are driven by two conditions, onshore flow and offshore flow, when it comes to wildland fire behavior impacts. Onshore flow is created when the land mass heats up (mountains and deserts particularly) inland, creating a low-pressure area. Cooler air from over the ocean flows onshore to fill these low-pressure areas. To some degree, this occurs every day. The inland heating causes daytime onshore winds, and when the night comes, the flow reverses once the air over the ocean is warmer than the air over the land mass. This is depicted in Figure 38 below.

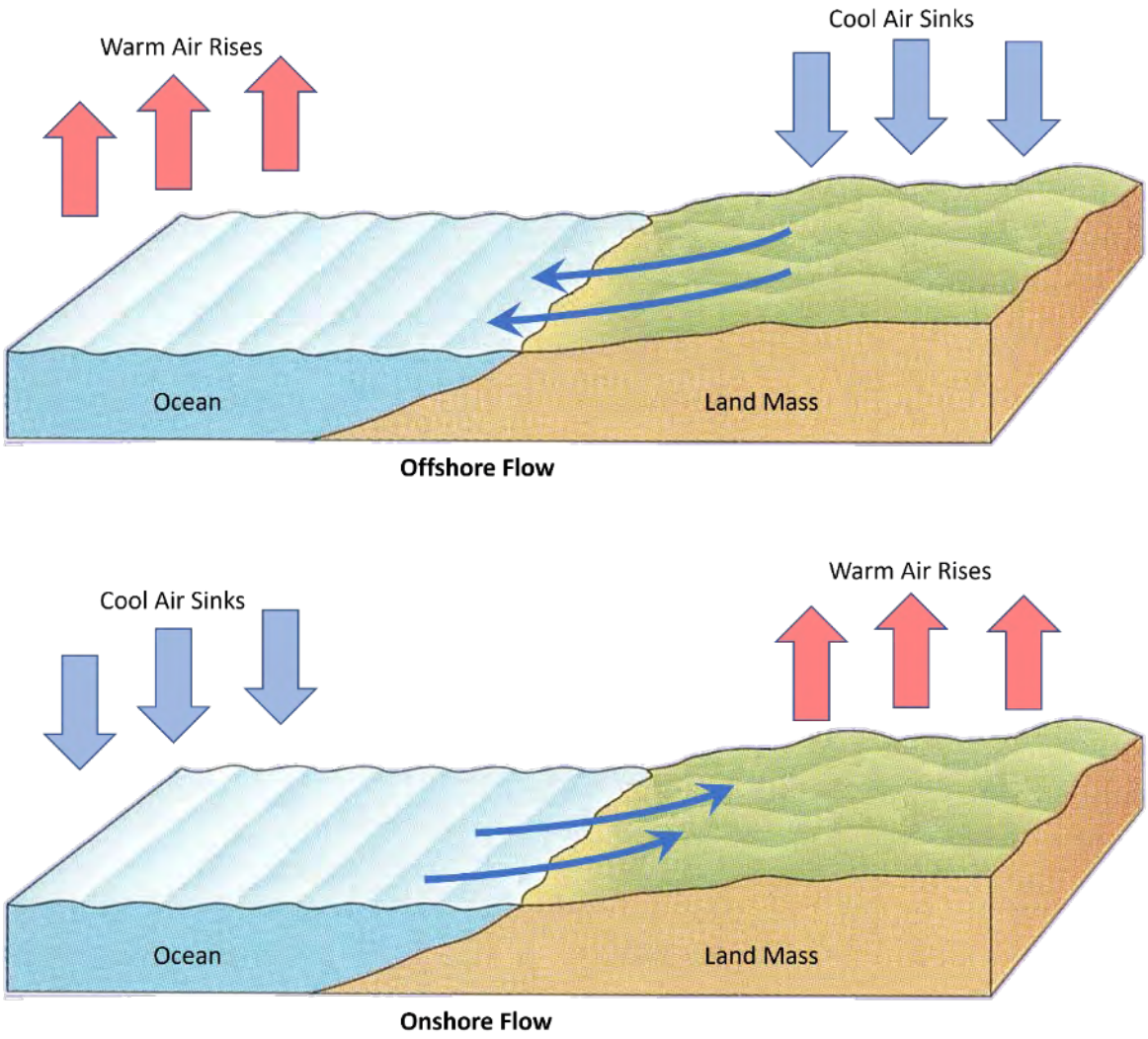


Figure 38 – Onshore vs Offshore Flow

Fronts and large high-pressure domes can override this normal flow. One such event is a high-pressure area to the east (often called a high-pressure dome) which sets up air flow from the interior moving toward low pressure over the ocean. This creates the Santa Ana wind events that occur regularly in southern California but more often in the fall. Figure 39, below, illustrates how the flow might occur (base graphic taken from an actual wind event) when the high pressure is both east and north of the Los Angeles basin. Very often, the high pressure moves from the west to the east while moving from the north to the south across the high desert area or even the "four corners" area of the United States. The wind event is driven by the pressure difference between the high- and low-pressure areas.

Santa Ana winds tend to warm as they travel across the dry areas to the east (sometimes hot areas). The moisture in the air (RH) is reduced by this arid region. The winds are channeled by the topography and in some cases, the wind speeds are significantly increased by this process. This results in high winds which are hot, dry, and sustained. At the Project Site, Santa Ana winds will normally come from the N, NNE, or NE due to the way the air flows through the mountain passes to the north and east of the project site. Most extreme fire behavior in southern California occurs during a Santa Ana wind event.

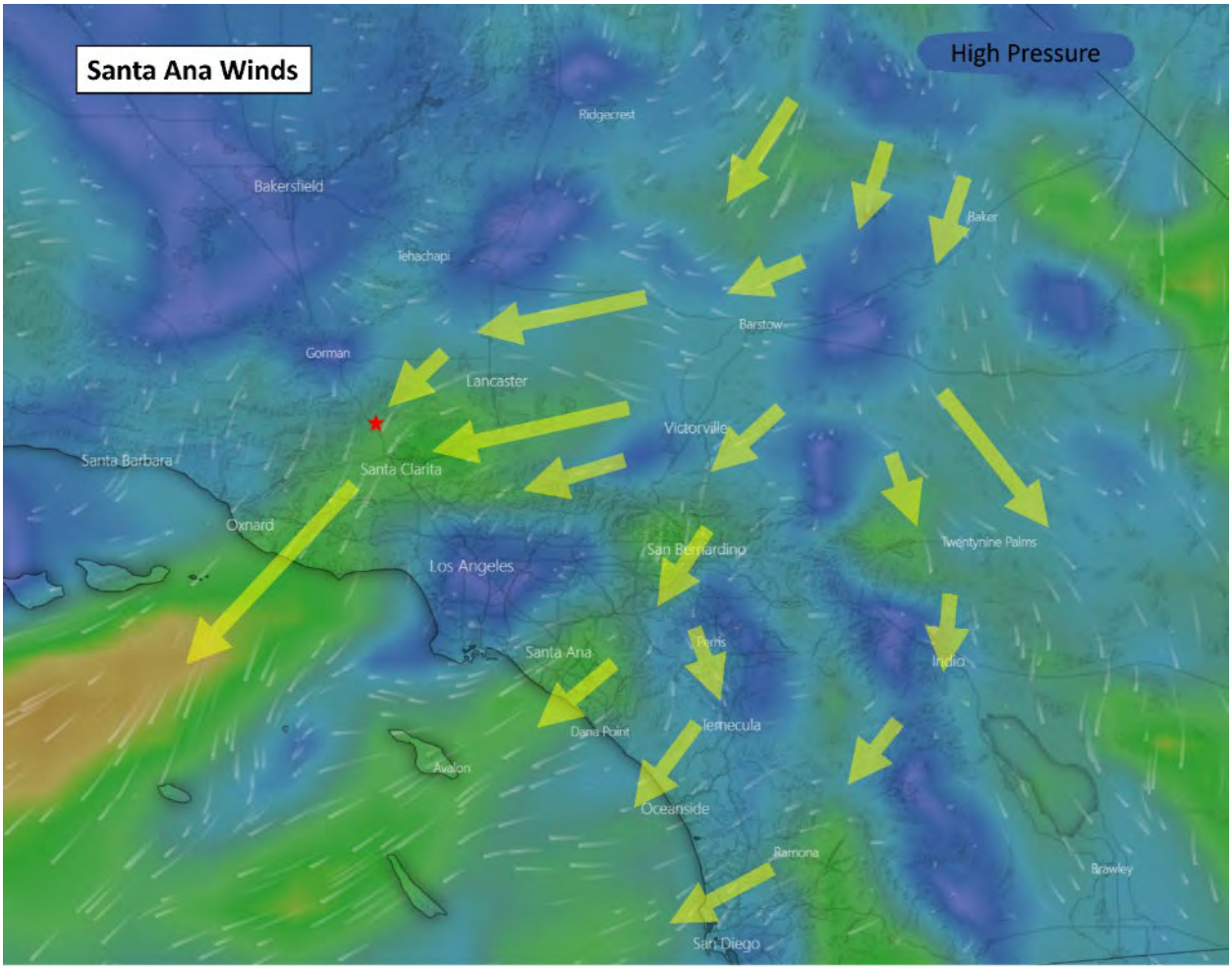


Figure 39 – Santa Ana Wind Event Map

Historical

USGS scientists and collaborators have found that the number of wildfire ignitions and wind speeds outweigh temperature and precipitation in determining the area burned in Southern California's Santa Ana wind-driven fires.

> *Using historical weather data, the researchers identified Santa Ana events from Southern California between 1948 and 2018. Then, using climate and fire records, they determined how well three types of variables explained the total area burned during these events: 1) weather associated with the Santa Ana wind event, 2) climate during the months and years prior to the event, and 3) the number of ignitions during the Santa Ana wind event.*
>
> *The analysis found that most climate and weather-related variables were not strong or consistent drivers of area burned over the 71-year time period studied. Higher temperatures during or in the months prior to Santa Ana Wind events were generally not associated with the area burned, and precipitation was a significant factor only during some months and time periods. In contrast, wind speeds and number of ignitions were strongly and consistently associated with the area burned. (*https://www.usgs.gov/news/research-spotlight-ignitions-and-wind-speed-are-strongest-drivers-area-burned-santa-ana-wind)

As winds and fire starts are the primary contributors to extreme fire behavior, it is important to understand when and how often this occurs. A study completed in 2010 found that the events start in late summer and continue through early spring. Each event lasts a few days but can exceed five days in some cases.

> *Santa Ana winds (SAW) are synoptically driven mesoscale winds observed in Southern California, usually during late fall and winter. Because of the complex topography of the region, SAW episodes can sometimes be extremely intense and pose significant environmental hazards, especially during wildfire incidents. A simple set of criteria was used to identify synoptic-scale conditions associated with SAW events in the NCEP–Department of Energy (DOE) reanalysis. SAW events start in late summer and early fall, peak in December–January, and decrease by early spring. The typical duration of SAW conditions is 1–3 days, although extreme cases can last more than 5 days. SAW events exhibit large interannual variations/ and possible mechanisms responsible for trends and low-frequency variations need further study. A climate run of the NCEP Climate Forecast System (CFS) model showed good agreement and generally small differences with the observed climatological characteristics of SAW conditions. (Jones, Charles & Fujioka, Francis & Carvalho, Leila. (2010). Forecast Skill of Synoptic Conditions Associated with Santa Ana Winds in Southern California. Monthly Weather Review. 138. 4528-4541. 10.1175/2010mwr3406.1.)*

The combination of low moisture content (air and fuels) combined with wind events and ignitions during the wind event provides the necessary conditions for extreme fire behavior and a large wildland fire to occur in the area of the Project Site. Data from the 2010 study is summarized in Figure 40 on the next page.

The climatological properties of the synoptic-scale conditions associated with Santa Ana Winds (SAW) were assessed. This was accomplished using the National Centers for Environmental Prediction-Department of Energy (NCEP-DOE) reanalysis and a climate run of the NCEP Climate Forecast System (CFS) model.

The dark bars refer to NCEP-DOE reanalysis, and the clear bars refer to the CFS climate run.

Mean number of Santa Ana wind events per month. (top)

Frequency distribution of duration of events. (middle)

Frequency distribution of maximum sea level pressure difference between the Great Basin (35°- 45° N, 120"-107.5° W) and Southern California (30"-35° N. 120°- 115° W) domains. (bottom)

Jones, Charles & Fujioka, Francis & Carvalho, Leila. (2010). Forecast Skill of Synoptic Conditions Associated with Santa Ana Winds in Southern California. Monthly Weather Review. 138. 4528-4541. 10.1175/2010mwr3406.1

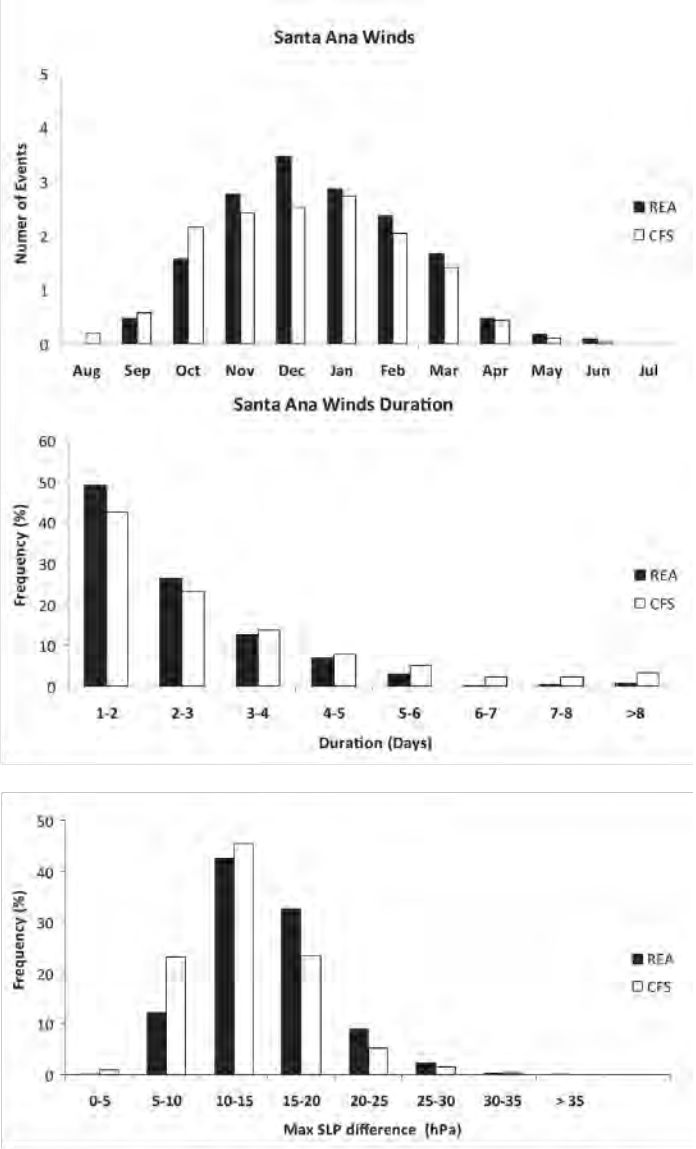


Figure 40 – Santa Ana Wind Event Date Profile

Santa Ana wind events, in and of themselves, do not produce extreme fire behavior conditions. In fact, in the USGS study highlighted on the previous page, the following conclusion was found:

> *The data highlights the fact that regardless of extreme winds and weather conditions, wildfires cannot occur without an ignition. Of the 643 Santa Ana wind events examined in the study, more than 75% had no fires, and even during extreme winds there was a greater than 50% chance of no burning.* (https://www.usgs.gov/news/research-spotlight-ignitions-and-wind-speed-are-strongest-drivers-area-burned-santa-ana-wind)

Expected Fire Activity Based on History

Based on the location of the Project Site adjacent to the I-5 freeway (source of many fire ignitions) and the proximity of the historic fire corridor to the north, coupled with the probability

of wind events in the area during times of low moisture (fuel and air), it must be assumed that extreme fire behavior is going to occur near the Project Site in the near future and continue. Of the 26 large fires to occur in the area around the Project Site (Figure 17, on page 24), all occurred between April and December. Sixteen of the 26 (62%) occurred in June, July, or August, with 8 (31%) occurring in August (Figure 41, below).

These conditions are the reason for this report modeling extreme fire behavior that has not been recorded by the weather data stations or specifically documented in the fires which have occurred in the surrounding area to the Project Site. Mitigation for extreme fire behavior will be necessary.

Month	Occurrences	%	
April	1	4%	
May	3	12%	
June	**5**	**19%**	**19%**
July	**3**	**12%**	**12%**
August	**8**	**31%**	**31%**
September	3	12%	
October	2	8%	
November	0	0%	
December	1	4%	
18 years (2004-2022)	26	100%	62%

Figure 41 – Regional Fire History Occurrence Chart

Wildfire Risk

The assessment of Wildfire Risk is to examine the hazards in terms of the vulnerability of the assets at risk, the amount of exposure those assets have and the susceptibility of the assets to wildfire.

Vulnerability

Vulnerability must be examined at multiple levels (Regional, Landscape, Community, and Parcel). At the end of the day, it all comes down to time, distance and shielding. The amount of time that the fire will impact the area, the distance between the fire and the structures/residents, and the ability of the Project Site to shield its structures/residents from the harmful effects of the fire.

In terms of regional vulnerability, state-wide studies such as the Caltrans Climate Change Vulnerability Assessment Statewide Summary Report 2021 provide a good overview of how different regions of the state of California are expected to be impacted by various climate change issues.

> CalTrans completed a statewide Caltrans Climate Change Vulnerability Assessment for the entire State Highway System in 2019. This study involved applying climate data to refine the agency's understanding of potential climate impacts to the State Highway System, and Caltrans coordinated with various state and federal agencies and academic institutions to obtain the best available climate

data for California. Discussions with professionals from various engineering disciplines helped identify how changing climate hazards may affect highways, including their design. The assessment allowed Caltrans to begin to understand how climate change may affect the highway and identified a subset of State Highway System assets on which to focus future efforts. (https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/office-of-smart-mobility-and-climate-change/caltrans-climate-change-vulnerability-assessment-statewide-summary-feb2021-a11y.pdf)

Table 1 (Figure 42 in this report) summarizes the lengths of the State Highway System that passes through the medium to very-high wildfire exposure areas. The Project Site is located in District 7 which is expected to see only a 4.3% increase in the number of State Highway System miles that pass through the medium to very high wildfire exposure areas.

Table 1: Centerline Miles of Highway Exposed by Year

District	Year 2025	2055	2085	
1	585	702	784	34.0%
2	1519	1534	1544	1.6%
3	743	743	743	0.0%
4	377	546	631	67.4%
5	761	837	875	15.0%
6	638	630	638	0.0%
7	442	451	461	4.3%
8	483	556	655	35.6%
9	296	333	349	17.9%
10	781	786	786	0.6%
11	371	378	423	14.0%
12	71	72	72	1.4%
Total	7068	7567	7961	12.6%



CALTRANS CLIMATE CHANGE VULNERABILITY ASSESSMENT STATEWIDE SUMMARY REPORT 2021

Figure 42 – CalTrans Climate Change Vulnerability Assessment Wildfire 2021

At the Parcel level, the issue of vulnerability is more specific to the actual structure, the amount of defensible space and the degree of "hardening" of the structure. The current building code standards for structures in the Fire Hazard Severity Zones create the ability for the structure to be more survivable during a fire in the interface. This issue has been studied, and the findings support this view.

The CalFire DSpace (Defensible Space) and DINS (Damage Inspection) Program Analysis program completed an assessment to analyze the effectiveness of Chapter 7A building codes, where they performed a spatial analysis that compared the location of damaged/destroyed commercial and residential structures for the seven largest fires that occurred in 2017 and 2018 (Atlas, Camp, Carr, Nuns, Thomas, Tubbs, and Woolsey) to a 2018 statewide parcel layer. Parcel

data, maintained by counties primarily for location and tax purposes, is the most authoritative dataset for information regarding the value and year built of structures in each area.

This research demonstrates the power of geospatial information to inform research-based decisions. The study demonstrated that structures built to pre-Chapter 7A building codes were more likely to be destroyed in the seven largest fires on record between 2017 and 2018 (Atlas, Camp, Carr, Nuns, Thomas, Tubbs, and Woolsey). The results also demonstrate that residential structures built in High and Very High Fire Hazard Severity Zones (FHSZ) were less likely to be destroyed by wildfire than those built in Low FHSZ and Urban classifications.

Using over 1,000 pre-fire home inspections, we were able to use real-world data to analyze what factors were most strongly associated with residential structure loss in the Camp Fire. Our findings indicate that wooden roofs, single-pane windows, wooden decks/patios, combustible exterior siding, and a combustible fence attached to a structure are the attributes that are most likely to increase the odds of loss for a residential structure. Structures with double pane windows and patio/carport covers, decks, and exterior siding made of non-combustible materials had a significantly lower chance of structure loss. (CAL FIRE Defensible Space and Damage Inspection Program Data Analysis, August 27, 2019, Steven R. Hawks, William L. Brewer)

Between the Regional level and Parcel level are the Landscape and Community levels. The Landscape level is about the vegetation surrounding the development. The U.S. Fire Administration defines this level as:

> *Wildland landscapes are the dense natural areas that surround the community. These large natural areas can be made up of thousands or even millions of acres. They contain diverse natural fuel types, have undergone various levels of development or management, and are under the oversight of state, federal, tribes, cities or other agencies and organizations.*
>
> *These landscapes require the highest level of collaborative management and partnership. Local fire resources can actively work with the larger land management partners in establishing forest management discussions, project prioritization, strategic planning and implementation efforts.* (U.S. *Fire Administration, Wildfire, Healthy Landscapes, https://www.usfa.fema.gov/wui/healthy-landscapes/)*

At the Community level are the issues of placement on the topography, fuel modification zones, roadside clearance, allowable plant palette, and infrastructure (roads, water, design).

Vulnerability is further divided into Exposure and Susceptibility for the purpose of analysis in the case of wildland fires.

Exposure

Exposure is the result of Likelihood and Intensity combining or occurring simultaneously. A community or structure can be directly exposed to wildfire from adjacent wildland vegetation (direct flame contact, radiated heat exposure, or convected heat exposure), or indirectly exposed to wildfire from embers and home-to-home ignition.

The Project Site will have structures that are constructed in accordance with the current codes with respect to wildland fire safety. This means that they will be "hardened", they will have defensible space designed into the configuration, they will be protected with automatic fire sprinklers, and the entire Project Site will have fuel modification zones in accordance with the development requirement of the Los Angeles County Fire Department (up to 200' distance in some cases). Direct exposure to a wildland fire is extremely unlikely, given the requirements applied to this development. Indirect (embers and brands) are likely to occur during a fire in the adjacent wildland. Requirements in the Los Angeles County Building Code Chapter 7A and in the Los Angeles County Residential Code Section R337 provide for ember protection through requirements on vents, gutters, roof valleys, decks, exterior siding, eave protection and several other areas where fire embers might be an issue if they were to land or collect.

The issue of home-to-home ignition is addressed by several mitigations which include: the automatic fire sprinkler systems which are designed to hold the fire to the room of origin, the increased fire resistance nature of the exterior of the structures, the use of double-pane windows with one pane being required to be tempered glass and requirement of Chapter 49 of the Fire Code, and the Public Resources Code Section 4291 which provides for the requirements of the "home ignition zone" to reduce the possibility of structure ignition or fire movement between structures.

The CalFire DSpace (Defensible Space) and DINS (Damage Inspection) Program Analysis program concluded that "… *a higher proportion of parcels built pre-Chapter 7A contained a destroyed structure and a greater proportion of parcels with no damaged or destroyed contained a structure built post 2009"*. It also concluded that, "… *results also demonstrate that residential structures built in High and Very High Fire Hazard Severity Zones (FHSZ) were less likely to be destroyed by wildfire than those built in Low FHSZ and Urban classifications*" which provides some data on the improved outcomes in the zones where construction features are required to be increased for direct and indirect wildland fire impacts.

Susceptibility

The NorthLake project's three configurations are more alike than they are different. Figure 43, on the next page, overlays the three configurations in order to show the similarities and differences. There are two significant differences from a wildland fire perspective.

The Previously Approved configuration and the Creek Avoidance configuration have significantly larger wildland interface perimeters (36.8% and 43.4% respectively) compared to the that of the Partial Creek Avoidance configuration. This means that there are more interfaces with direct impact on the development. Perimeter structures must be protected from radiant heat, direct flame contact and convected heat to a higher degree than the structures which are in the interior of the development envelope. This increased area equates to increased risk potential.

The second difference is the configuration of the development. The Previously Approved and Creek Avoidance configurations have areas at the north end of the Project Site, which have pockets of development with wildland fuels on multiple sides with short distances between them in the development envelope. While not an Intermix condition (as described on page 21), the convoluted interface will increase the complexity of the fire behavior closer to the development area. Additionally, the Creek Avoidance configuration has vegetation on both sides of the

project access roadways (all three), whereas the Previously Approved and Partial Avoidance configurations have this condition on only one of the project access roads. This will be discussed further in the evacuation analysis later in this report.

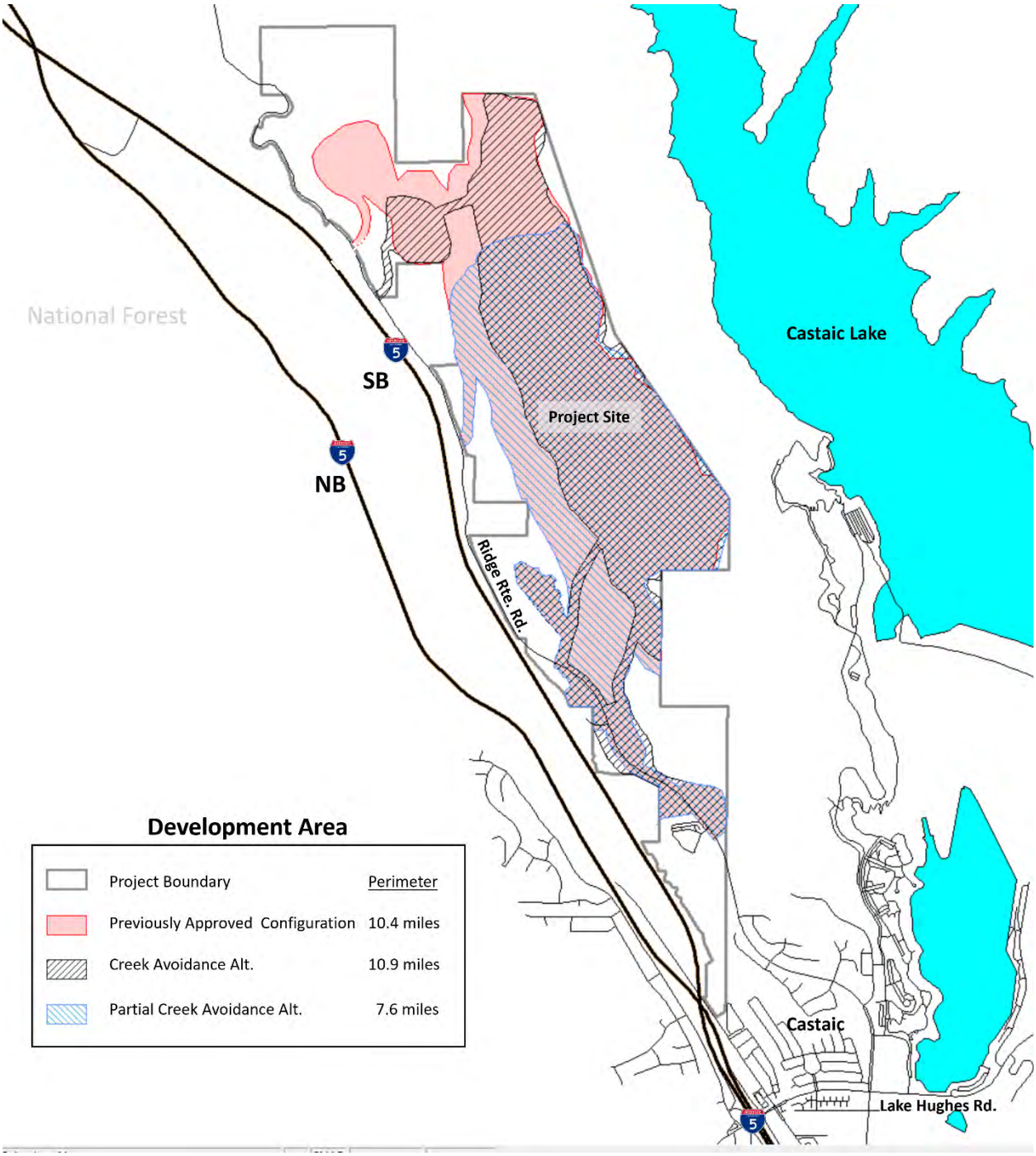


Figure 43 – Project Configurations Overlay

Climatic Conditions

Increasing Temperatures: While temperature increases are likely, according to most of the published materials on climate change in California, the Project Site is not likely to be impacted by this change in terms of wildland fire behavior. The USGS report cited earlier stated, "*Higher temperatures during or in the months prior to Santa Ana Wind events were generally not associated with area burned."* Higher temperatures may well increase the curing rate (rate at which the seasonal growth loses moisture and becomes a dead fuel) of seasonal grasses and increase the decline in fuel moisture during the dry periods, but the wildland fuels which are adjacent to and within the Project Site are drought tolerant. Where they not, they would have already succumbed to the current drought cycles in the region. The temperature is certainly important on an incident-level analysis, but this assessment is considering the worst-case scenario and has already assumed that this has occurred.
(https://www.usgs.gov/news/research-spotlight-ignitions-and-wind-speed-are-strongest-drivers-area-burned-santa-ana-wind).

Shifting Wind Patterns: The Santa Ana winds will continue to shape wildfire activity across Southern California. While Fire Weather and Fire Behavior Modelers continue working to determine how these wind events will be impacted by climate change, this analysis has already taken the worst-case wind into account from the current data available.

Precipitation: The amount of rainfall and when it occurs have an extreme impact on fire conditions every year. Drought-impacted fuels are also more susceptible to wildfire. Wildland fuels in this analysis have assumed an extremely low level of moisture in both the dead and live fuels to account for this aspect of climate change. Changing patterns of rainfall will impact plant growth, thereby altering the amount of fuel for fires.

Changes in Wildland Fuels: After a fire, the lack of precipitation will have an effect on the vegetation that returns. Invasive plants may overtake the native species after a fire. *Most evidence indicates that the strongest impacts of invasive plants on fire regimes in California occur in coastal sage scrub, deserts, and riparian areas.* During this interval, fires may have faster rates of spread but will have lower fireline intensity.

> When one thinks of fire in California, one immediately thinks of the massive conflagrations that occur in central and southern California chaparral and sage-scrub ecosystems, particularly because of their close proximity to dense population centers. These closed-canopy shrublands—particularly intact chaparral—are in fact relatively resistant to invasion by non-native species. However, non-native plants are increasingly closely tied to fire dynamics and to ecosystem responses to fire in some regions.
>
> Under natural conditions, chaparral communities retain most fuels in the canopy layer and have relatively long fire intervals (greater than 20 years). Contrary to common perception, foliar tissue does not easily ignite except under super-heated conditions or when leaf tissue moisture is low. However, several weedy forbs and grasses tend to thrive at the disturbed edges of these shrublands along roads, power lines, and fuel breaks where shrubs are removed. The invasive, annual grasses that often colonize these areas dry out much earlier in the spring than the native shrubs, and with their high surface area to volume ratio, are more prone to ignition than the native

> vegetation. Mediterranean grasses such as Bromus species and slender oats (Avena barbata) are particularly implicated since they act as wicks, spreading fast-moving fire into the canopies of larger shrub vegetation.
> (Invasive Species and Fire in California Ecosystems, Adam M. Lambert, Carla M. D'Antonio, and Tom L. Dudley, 2010).

California sagebrush in the southern part of the state will adjust better to climate change than sagebrush populations in the north, according to UC Irvine researchers in the Department of Ecology & Evolutionary Biology affiliated with the Center for Environmental Biology. (https://ceb.bio.uci.edu/research/ca-sagebrush/)

The Project Site has both shrub and grass fuels at the perimeter/interface. The modeling will show fire activity in the shrub, grass/shrub mixtures and grass fuels. All three are accounted for in the analysis.

Shifting Insect Habitat: Insect infestations are rising in response to the changing climate, increasing tree mortality—particularly in the southern Sierra Nevada —and reducing carbon storage according to the Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act published by the California Attorney General in October of 2022. The Project Site has few trees and will have only small areas of trees at its interface with the native fuels. Insect infestations are not expected to impact the Project Site in any meaningful way.

Hazard and Risk Summary

The Project Site is embedded in an area that is adjacent to native wildland fuels on most of the Project Site wildland interface. The Project Site is located, for the most part, within the Grasshopper Canyon drainage, where most fuels will be at the same level or above the new structures. According to the CalFire database, fires have historically occurred with regular frequency in the regional area around the Project Site and have burned over the Project Site on more than one occasion. Current scientific studies (cited previously in this report) indicate that large fire activity will involve winds pushing the fire to achieve extreme fire behavior. The I-5 corridor is a source of many fires within the area but also serves as a barrier to some fires (fire perimeter stops at the freeway) where fire conditions (ember cast) do not allow the fire to cross over the freeway and continue to burn. Extreme fire behavior is possible and should be modeled in any scenario in which fire behavior outputs are to be used in this report. This is the basis for the analysis that follows.

The Project Site will need to mitigate against direct fire impingement, radiant heat impingement, convected heat impacts, and ember/brand intrusion which are all required by the current Regulations. Additionally, modeling will need to demonstrate that the Project Site can be evacuated in a timely manner or that if evacuation is not possible because of the location of the incipient fire, the community will be able to provide "areas of refuge" until it is safe to evacuate, or the fire is suppressed.

Project Impacts Related to Wildland Fires

Ingress/Egress

All three of the project configurations have the same two southerly access points with respect to the point at which they intersect with Ridge Route Road. The third access point (most northerly) is different for each configuration. The Previously Approved configuration has the third access point at the most northerly intersection of the three whereas the Partial Creek Avoidance configuration has the third point access at the most southerly intersection of the three. For discussion purposes, the Evac (evacuation) points have been labeled in Figure 44. Evac Point 3A is for the Previously Approved configuration, 3B is for the Creek Avoidance configuration, and 3C is for the Partial Creek Avoidance configuration.

The Creek Avoidance configuration differs from the other two in that a large area of native vegetation exists between the first and second access points that do not exist in the other two configurations. Each Evac point will be discussed for each fire scenario.

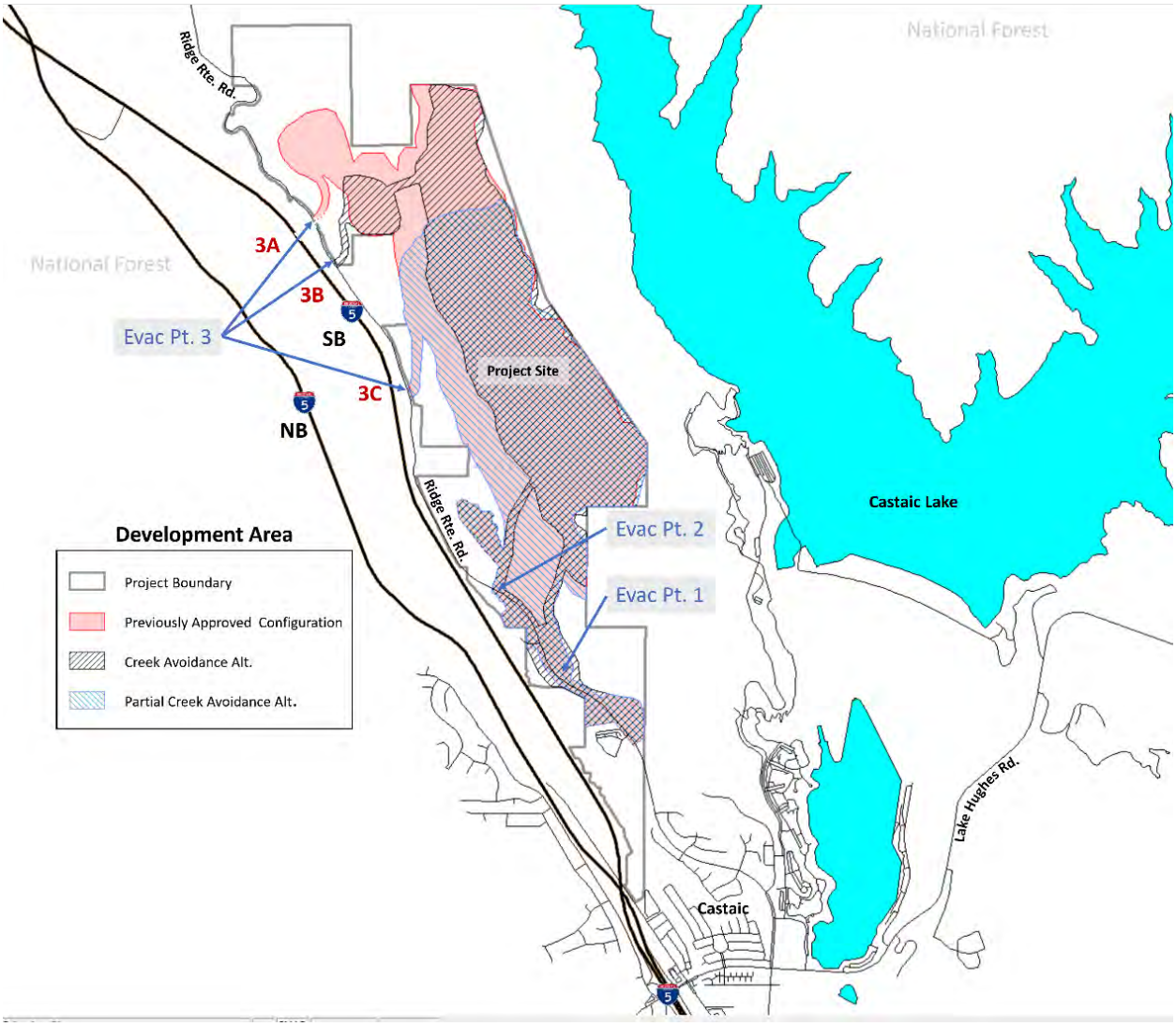


Figure 44 – Evac (Evacuation) Points

Fire Modeling

Fire modeling will provide a number of outputs that can be used to examine the need and appropriateness of project design features and mitigation measures. Static modeling is for a given location or condition which does not account for variables over the landscape. The BehavePlus modeling software will be used for this purpose. *"The BehavePlus, Fire Behavior Prediction, and Fuel Modeling System is the most popular and accurate method for predicting wildland fire behavior in pre-fire defense planning. The BehavePlus fire behavior computer modeling system is utilized by wildland fire experts nationwide. Because the model was designed to predict the spread of a fire, the fire model describes the fire behavior only within the flaming front. The primary driving force in the fire behavior calculations is the dead fuel less than ¼" in diameter; these are the fine fuels that carry the fire. Fuels larger than ¼" in diameter contribute to fire intensity, but not necessarily to fire spread. The BehavePlus fire model describes a wildfire spreading through surface fuels, which are burnable materials within 6' of the ground and contiguous to the ground. This type of modeling demonstrates the potential of wind, or a slope-driven fire that could potentially enter the fuel modification zones from the adjacent wildland areas."* (Andrews, Patricia L. 2014 (published online 2013). Current status and future needs of the BehavePlus Fire Modeling System. International Journal of Wildland Fire 23(1):21-33.)

The Regional modeling in this report will be accomplished using FlamMap which can simulate potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.), fire growth and spread, and conditional burn probabilities under constant environmental conditions (weather and fuel moisture). The version used in this report (Version 6.1) includes a FARSITE module (previously a separate application) which allows for outputs on wildfire growth and behavior for longer time periods under heterogeneous conditions of terrain, fuels, fuel moistures and weather.

Because environmental conditions remain constant when using FlamMap, MTT (Minimum Travel Time), Burn Probability, and TOM (Treatment Optimization Modeling), it will not simulate temporal variations in fire behavior caused by weather and diurnal fluctuations as FARSITE does. Nor will it display spatial variations caused by backing or flanking fire behavior. These limitations need to be considered when viewing FlamMap output using these models in an absolute rather than relative sense. However, these outputs are well-suited for Landscape-level comparisons of fuel treatment effectiveness because fuel is the only variable that changes. Outputs and comparisons can be used to identify combinations of hazardous fuel and topography, aiding in prioritizing fuel treatments.

The FlamMap software creates a variety of vector and raster maps of potential fire behavior characteristics (for example, spread rate, flame length, crown fire activity) and environmental conditions (dead fuel moistures, mid-flame wind speeds, and solar irradiance) over an entire landscape or for specific modeling applications these same outputs are limited to the simulation footprint (MTT and FARSITE). For practical purposes, the most important result of the FARSITE tests to date has been that **spread rates for all fuel models tended to be over-predicted** by the Rothermel spread equation (Rothermel 1972). (https://firelab.org/project/flammap). The overall result produces a conservative/worst-case analysis.

Static modeling (BehavePlus)

For the Static modeling, a worst-case fire scenario based on current and expected conditions was used. The modeling input assumptions are:

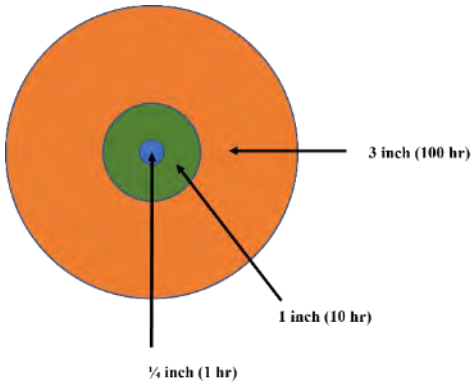


Figure 45 – Dead Fuel Moisture Sizes

1-hr Dead Fuel Moisture	3%
10-hr Dead Fuel Moisture	4%
100-hr Dead Fuel Moisture	5%
Live Herbaceous Fuel Moisture	30%
Live Woody Fuel Moisture	50%

Wind Speeds at 0, 25, 45, 65, and 80 mph with an adjustment factor of 0.5 (unprotected) were used for all to attain the midflame wind speeds. Winds are assumed to upslope in full alignment with fuels and slope. Outputs are for the head of the fire (leading edge) in the direction of maximum spread. Inputs for the modeling are shown in Figure 46, below.

Fuel Moisture

1-h Fuel Moisture	%	3
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	5
Live Herbaceous Fuel Moisture	%	30
Live Woody Fuel Moisture	%	50

Weather

20-ft Wind Speed	mi/h	0, 25, 45, 65, 80
Wind Adjustment Factor		0.5
Wind Direction (from north)	deg	45

Terrain

Slope Steepness	%	100
Site Aspect	deg	45

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].
Fire spread is in the HEADING direction only [SURFACE].
Wind is in specified directions [SURFACE].
Wind and spread directions are degrees clockwise from north [SURFACE].
Wind direction is the direction from which the wind is blowing [SURFACE].

Figure 46 – BehavePlus Inputs for Worst-case Scenario

The outputs are provided in Appendix B (Modeling Outputs) of this report. In Figure 47, on the next page, the Flame length outputs for each of the select fuel models are provided with some additional information for perspective. The outputs are arranged in two groups, the upper section for fuel with fuelbed depths of four feet or less and the lower section for fuelbed depths of six feet or greater. Within the four-feet or less fuels, SCAL18 fuel is clearly the most impactful (largest flame length/fireline intensity) and within the six-feet or more fuels, the SH5 fuel is the most impactful, both highlighted in yellow on Figure 47. Downslope fuelbeds of six feet or

more do not exist today in the interface areas where the development will meet the native fuels. These areas are, for the most part, Sage and Buckwheat fuels or grasses. SCAL 18 is the Sage and Buckwheat Southern California-specific fuel model (Fuel models designed to be used with the BehavePlus software).

The SCAL18 fuels have the potential to produce a 55-foot flame length (54.9') under 80 mph winds running up slope, in full alignment with the wind, slope (100%), fuels, and aspect. Under the same conditions, the SH5 fuel will produce a flame length of 63 feet (63.3') and the SH7 fuel as a flame length of 59 (59.4'). With "no wind" (zero mph) the flame length for SCAL18 is 23.7 with the 100% or 1:1 slope. In Figure 48, on the next page as well, the matrix shows the interplay between slope and wind for the SCAL18 fuel.

At zero wind/zero slope, the flame length is only 5.2' (green highlight). Increasing the slope to 100% increases the flame length to 23.7', but adding a 25-mph wind to the flat slope has a greater effect moving the flame length to 31.2' (red highlight). For all slope conditions with winds 25 mph or greater, the increase in flame length is only 4-7 feet, whereas at zero wind, the slope increases by 18.5 feet when the slope is increased to 100%. Wind overpowers slope in its ability to increase flame length. Also, of note in Figure 47, several of the fuels (highlighted in blue) simply run out of available fuels and no more increases in flame length well before reaching 65 mph. At this point, an increase in slope or wind has no effect on fire behavior.

Dry Climate Fuels - NorthLake

Head Fire

Surface Fire Flame Length (ft)

Fuel Model	20-ft Wind Speed mi/h				
	0	25	45	65	80
gr1	2.6	2.6	2.6	2.6	2.6
gr2	7.6	11.6	11.6	11.6	11.6
gs1	6.4	11.1	11.7	11.7	11.7
gs2	9.3	16.1	21.9	23.4	23.4
sh1	5.3	9.1	9.8	9.8	9.8
sh2	8.5	13.8	18.3	22.3	25.1
tu5	12.9	19.5	24.2	28.3	31.0
SCAL14	17.6	27.3	32.4	36.6	39.3
SCAL15	13.1	21.3	26.2	30.3	33.0
SCAL17	11.9	20.4	27.2	33.3	35.4
SCAL18	23.7	37.9	45.2	51.1	54.9
sh5	22.3	37.9	48.3	57.2	63.3
sh7	21.8	36.0	45.6	53.8	59.4
SCAL16	17.5	28.6	35.5	41.2	45.1

Fuelbed Depth of 4' or less

6' Plus

All available fuel is consumed, wind no longer has an impact

Fuel model with highest impact

Figure 47 – BehavePlus Output for Flame Length (all fuels)

* Appendix B, Page B-41 provides fuel model descriptions

The expected fire behavior at the Project Site's native wildland interface is highlighted in purple in Figure 48. Figure 34 (Slope Map) did not have any areas greater than 93% slope within the Project Site or adjacent to the perimeter. All manufactured slopes within the Project Site will be 50% or less in slope steepness. The line highlighted in yellow provided the maximum expected

values and the area in green the minimum expected values (no slope/no wind). It should be noted that at 25 mph, flame length is 31.2 feet, this 600% increase in flame length with only 25 mph of wind provides insight to the effects of wind over slope on the fire behavior.

The Project Site will use the maximum values (yellow highlight) when implementing the project features and mitigations provided to make the Project Site safe.

Climate Fuels - NorthLake Slope

Head Fire

Surface Fire Flame Length (ft)

Slope	SCAL18 Fuel	20-ft Wind Speed mi/h			
%	0	25	45	65	80
0	5.2	31.2	39.9	46.6	50.8
10	5.8	31.3	40.0	46.6	50.9
20	7.2	31.5	40.1	46.8	51.0
30	9.0	31.9	40.4	47.0	51.2
40	11.1	32.4	40.8	47.3	51.5
50	13.1	33.0	41.3	47.7	51.9
60	15.3	33.8	41.9	48.3	52.4
70	17.4	34.7	42.6	48.8	52.9
80	19.5	35.7	43.4	49.5	53.5
90	21.6	36.8	44.2	50.3	54.2
100	23.7	37.9	45.2	51.1	54.9

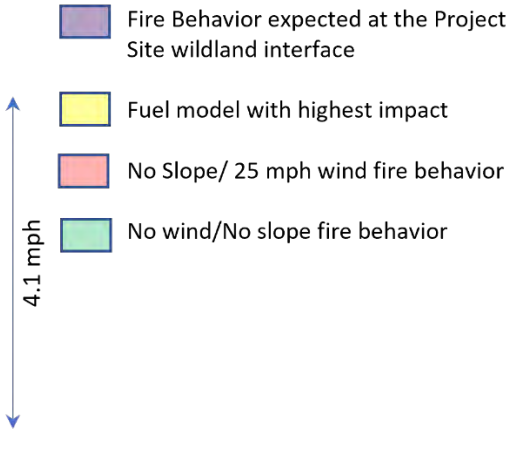


Figure 48 - BehavePlus Output for SCAL18 Fuels Flame Length

The fuel parameters (the variables for each of the fuel models) for each of the dry climate fuels near the Project Site are provided below in Figure 49. These standardized fuel models account for the amount of fuel available for combustion (Fuel Load), the size of the fuel in relationship to the area (SAV ratio or Surface Area to Volume ratio), the fuel bed depth, the level of moisture at which the fuel will no longer combust (moisture of extinction), the amount of live fuel that can be transferred to combustible fuel (Transfer rate), the amount of energy that the particular fuel model can be expected to release (Heat Content) and the amount of dead vs live fuel (live fuel must have the moisture driven off before it can combust).

For reference, Model 4 and Model 6 fuels have been included for reference. It should be noted that Model 4 fuel has a total fuel load of over 16 tons/acre. This level of fuel loading is not found near the Project Site in areas that are impactful to the Project Site, nor are they likely to occur, given the interface slope, aspect, and current vegetation. These older fuel models are not as precise as the newer (Scott and Burgan 40) models and the Southern California specific models are the most applicable (these have been used in this report for shrub fuels).

Fuel model parameters														Dead Component Calculation					
Fuel Model Code	Fuel Model Number	Climate	Fuel load (t/ac) 1-hr	10-hr	100-hr	Live herb	Live woody	Fuel model type[a]	SAV ratio (1/ft)[b] Dead 1-hr	Live herb	Live woody	Fuel bed depth (ft)	Dead fuel extinction moisture (percent)	Heat content BTU/lb)[c]	Fuel Model Code	100% Transfer Dead	Herb	Dead load	Total Load	Percentage id Component
GR1	101	Dry	0.10	0.00	0.00	0.30	0.00	dynamic	2200	2000	9999	0.4	15	8000	GR1	0.10	0.30	0.19	0.40	48%
GR2	102	Dry	0.10	0.00	0.00	1.00	0.00	dynamic	2000	1800	9999	1.0	15	8000	GR2	0.10	1.00	1.10	1.10	100%
GS1	121	Dry	0.20	0.00	0.00	0.50	0.65	dynamic	2000	1800	1800	0.9	15	8000	GS1	0.20	0.50	0.45	1.35	33%
GS2	122	Dry	0.50	0.50	0.00	0.60	1.00	dynamic	2000	1800	1800	1.5	15	8000	GS2	1.00	0.60	1.36	2.60	52%
SH1	141	Dry	0.25	0.25	0.00	0.15	1.30	dynamic	2000	1800	1600	1.0	15	8000	SH1	0.50	0.15	0.52	1.95	27%
SH2	142	Dry	1.35	2.40	0.75	0.00	3.85	static	2000	9999	1600	1.0	15	8000	SH2	4.50	no transfer	4.50	8.35	54%
TU5	165	Dry	4.00	4.00	3.00	0.00	3.00	static	1500	9999	750	1.0	25	8000	TU5	11.00	no transfer	11.00	14.00	79%
SCAL14	N/A	N/A	3.00	4.50	1.05	1.45	5.00	static	350	1500	250	3.0	15	9211	SCAL14	8.55	no transfer	8.55	15.00	57%
SCAL15	N/A	N/A	2.00	3.00	1.00	0.50	2.00	static	640	220	640	3.0	13	10000	SCAL15	6.00	no transfer	6.00	8.50	71%
SCAL17	N/A	N/A	1.30	1.00	1.00	2.00	2.00	static	640	2200	640	4.0	20	8000	SCAL17	3.30	no transfer	3.30	7.30	45%
SCAL18	N/A	N/A	5.50	0.80	0.10	0.75	2.50	static	640	1500	640	3.0	25	9200	SCAL18	6.40	no transfer	6.40	9.65	66%
SH5	145	Dry	3.60	2.10	0.00	0.00	2.90	static	750	9999	1600	5.0	15	8000	SH5	5.70	no transfer	5.70	8.60	66%
SH7	147	Dry	3.50	5.30	2.20	0.00	3.40	static	750	9999	1600	6.0	15	8000	SH7	11.00	no transfer	11.00	14.40	76%
SCAL16	N/A	N/A	2.25	4.80	1.80	3.00	2.85	static	500	1500	500	6.0	15	8000	SCAL16	8.85	no transfer	8.85	14.70	60%
Reference Only																				
Model 4	4	N/A	5.01	4.01	2.00	0.00	5.01	static	2000	1500	1500	6.0	20	8000	Model 4	11.02	no transfer	11.02	16.03	69%
Model 6	6	N/A	1.50	2.50	2.00	0.00	0.00	static	1750	1500	1500	2.5	25	8000	Model 6	6.00	no transfer	6.00	6.00	100%

[a] Fuel model type does not apply to fuel models without live herbaceous load.
[b] The value 9999 was assigned in cases where there is no load in a particular fuel class or category
[c] The same heat content value was applied to both live and dead fuel categories.
Note: Dynamic fuels calculated at 100% herbaceous live fuel load transfer due to extreme low fuel moisture in the worse case scenario

Reference: Scott, Joe H.; Burgan, Robert E. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. p28.

Figure 49 – Wildland Fuel Model Parameters(a larger version is provided in Appendix B, page B-35)
Yellow highlights show the most impactful fuels under four feet (SCAL18) and over four feet(SH5). The red highlighted is to distinguish the six-foot fuel beds. The green highlight is the predominant fuel on the Project Site.

Also of note is the Rate of Spread for each of the fuels under different wind speeds, as shown below in Figure 50. SCAL18, historic fuel configuration according to Landfire data (not current condition due to Route Fire), has a rate of spread that is similar to or less than the GS2 and SH5 fuels (highlighted in red) found in the Landscape data file which is used for the fire modeling. The Landscape fuels will overestimate the rate of spread over that SCAL18 fuels (highlighted in green) which are likely to return to the Project Site.

Dry Climate Fuels - NorthLake
Head Fire
Surface Fire Rate of Spread (ft/min)

Fuel Model	20-ft Wind Speed mi/h 0	25	45	65	80	
gr1	30.0	30.0	30.0	30.0	30.0	
gr2	108.9	268.7	268.7	268.7	268.7	
gs1	54.0	181.3	203.3	203.3	203.3	
gs2	75.1	249.7	486.6	565.2	565.2	
sh1	31.7	102.1	120.2	120.2	120.2	
sh2	23.9	69.6	127.4	196.4	254.2	
tu5	29.1	71.6	113.8	159.5	195.5	
SCAL14	45.4	117.9	170.9	222.3	260.1	
SCAL15	52.8	151.3	236.8	325.0	392.3	
SCAL17	84.7	273.9	511.7	795.3	907.0	
SCAL18	81.2	225.6	329.8	430.4	504.3	Fuelbed Depth of 4' or less
sh5	150.6	477.4	807.9	1168.3	1453.3	
sh7	106.0	316.5	526.9	755.4	935.6	6' Plus
SCAL16	78.8	231.0	367.3	509.2	618.3	

Figure 50 – BehavePlus Output for Rate of Spread (all fuels)

Static modeling has shown that flame lengths of 55 feet could be expected if the fire was running upslope, in alignment with the wind, in a continuous fuelbed, with a wind of 80 mph (Figure 48). Flame lengths of 63 feet are possible if those fuels were to grow to be six-foot-high chaparral based on the SH5 fuel model (Figure 47). BehavePlus 6.0.0 has a chaparral module for refining these calculations. If this module is run in the same scenario parameters and the maximum value

for fuelbed depth is input at 10 feet, and the Dead Load Fraction is set to the maximum value in the model of 64%, the maximum flame length is 51.5 feet, as shown below in Figure 51.

Based on the worst-case modeling calculations, a maximum flame length of approximately 50 feet could be expected under extreme conditions which are not present on the Project Site currently or in the recent past (prior to the Route Fire).

Inputs: SURFACE

Description		Dry Climate Fuels - NorthLake Chaparral
Fuel/Vegetation, Surface/Understory		
Chaparral Fuel Type		Chamise, MixedBrush
Chaparral Fuel Bed Depth	ft	10
Chaparral Dead Load Fraction	%	64
Fuel Moisture		
1-h Fuel Moisture	%	3
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	5
Live Herbaceous Fuel Moisture	%	30
Live Woody Fuel Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	0, 25, 45, 65, 80
Wind Adjustment Factor		0.5
Wind Direction (from north)	deg	45
Terrain		
Slope Steepness	%	100
Site Aspect	deg	45

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Surface Fire Flame Length (ft)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	11.7	23.3
25	20.3	38.3
45	20.8	44.1
65	20.8	48.6
80	20.8	51.5

Figure 51 – BehavePlus Inputs and Outputs for Chaparral Fuels Comparision

Regional Modeling (FlamMap/MTT)

Using the FlamMap software it is possible to track the expected path of the fire across the landscape (wildland) and provide rough timeframes for the arrival of the fire front. Specifically, the Minimum Travel Time (MTT) module provides both the path of the fire (major and minor paths) and the excepted arrival interval from the starting point of the scenario. In this section, this function will be used to estimate the amount of time that would be available for evacuation at each of the Evacuation Points discussed earlier. Each scenario will be completed for all three project configurations (Previously Approved Project, Creek Avoidance Alternative, Partial Creek

Avoidance Alternative). The information generated here will be used in the traffic analysis for evacuation timeframes.

The inputs to the FlamMap software are as follows:

- Onshore winds are set to 40 mph for all scenarios except the Route Fire scenario based on the weather history for the area. 99th percentile value was under 40 mph.
- Offshore winds are set to 70 mph for all scenarios based on the weather history for the area. Maximum recorded wind gust was 69.2 mph; 99th percentile value was 37.4 mph.
- Foliar Moisture Content is set to 100% (very few trees in the area of the Project Site).
- Crown Fire Calculation Method set to Finney (2004) as this is the method used in the FARSITE modeling software and it the most appropriate for the model as it is being used (minimum travel time).
- Winds are calculated using Generated Gridded Wind (Wind Ninja) rather than generating them in Wind Ninja and importing the results.
- Fuel Moisture settings were fixed using a 3,4,5,30,50 moisture scenario as discussed previously.
- Fuel Moisture Conditions were not used as the moisture scenario is worst-case. Since the lowest recorded moisture is being used, conditioning the fuels will not lower them.
- Maximum Simulation Time was set to 420 minutes as the evacuations would be completed prior to this point.
- Spot Probability was set to 100% to maximize the worst-case conditions.
- Spotting Delay was set to zero to maximize the worst-case conditions.
- Ignition and barrier files are scenario specific but identical for each configuration alternative.

Scenarios have been completed for the following conditions:

1. **RouteFireSim** - Route Fire 2022 (wind 25 mph at 255 degrees) attempting to model the fire that actually occurred.
2. **SSWat40Spot** - SSW wind at 40 mph (spot fires), fire from a small source which will include fire acceleration as it grows to equilibrium and becomes self-sustaining. This fire represents an onshore flow with fire running at maximum wind speed under dry conditions.
3. **SSWat40Line** - SSW wind at 40 mph (line of fire). Same fire as above from an established fire burning from the perimeter as head fire.
4. **Sat40Line –** S wind at 40 mph (line of fire), an established fire burning from the perimeter as head fire. Moving the onshore from the SSW to the south as the data indicated could happen.

5. **FreewaySpotsat40 -** S wind at 40 mph (freeway spot fires), fire from a small source which will include fire acceleration as it grows to equilibrium and becomes self-sustaining. Using a worst-case location to show a series of spot fires consistent with hot object from a vehicle on the freeway.
6. **LakeSpotsat40 -** S wind at 40 mph (lakeside spot fires), fire from a small source which will include fire acceleration as it grows to equilibrium and becomes self-sustaining. Fire simulated as an escaped warming fire in the drainage below the Project Site
7. **NEat70Line** - NE wind at 70 mph (line of fire), an established fire burning from the perimeter as head fire. A line of fire burning into the Project Site from the NE under Santa Ana wind conditions.
8. **NNEat70Line -** NNE wind at 70 mph (project boundary) (line of fire), an established fire burning from the perimeter as head fire. Same scenario with winds from the NNE as in an early Santa Ana condition.
9. **Nat70Line** - N wind at 70 mph (line of fire), an established fire burning from the perimeter as head fire. Fire simulates the worst-case location and wind direction as the fire runs quickly down the east side of the Project Site under extreme conditions.
10. **Templin Trigger** - N Wind at 70 mph (line of fire Templin Hwy) (line of fire), an established fire burning from the perimeter as head fire. This is an effort to show how much time would be available if the decision to evacuate was made at the time the fire reached this point of origin.

Each of these fires corresponds to historic wind data from the weather site discussed previously and summarized in Figures 27 and 31 above. Each scenario has been accomplished for each of the development configurations. Outputs are provided in the appendixes. The outcomes are summarized in the matrix on page 67. The matrix specifies the amount of time that the Evacuation Point would remain viable during the specific scenario.

In addition to the Evacuation Points, Route Points (control points) have been assigned to five locations along Ridge Route for the purpose of indicating when this access route will be impacted by fire which is not associated with driving to a specific Evacuation Point. While an entire neighborhood may be evacuated over time to eliminate possible future impact on the population, this evaluation is focused on the "population at immediate risk" and determining if they can effectively be moved to a safe location. These areas are identified in each scenario in Appendix B as dark gray polygons which are in the areas the fire reaches first based on the modeled scenarios.

As indicated in the matrix, every scenario has at least one exit that is viable for a minimum of four hours before the fire reaches it, with the exception of the Freeway Spots scenario, where only 30 minutes are provided; this limitation will be in place for 60-90 minutes for all project scenarios. It should be noted that by the time Evac Point 3B is impacted, the fire threats to Evac Points 1 and 2 are gone, as shown on page 68 (Figure 53). Fires in the wildland fuels, adjacent to the Project Site, tend to burn in "ribbons of fire" which have a flaming front and little fire behavior behind the flaming front. For this reason, once the fire has passed, so has most of the risk associated with the fire. The four-hour window is a function of the fuels, topography,

location of the road and the fire weather conditions. In the case of the Project Site, this represents a considerable time for evacuation of the those who are “at immediate risk”.

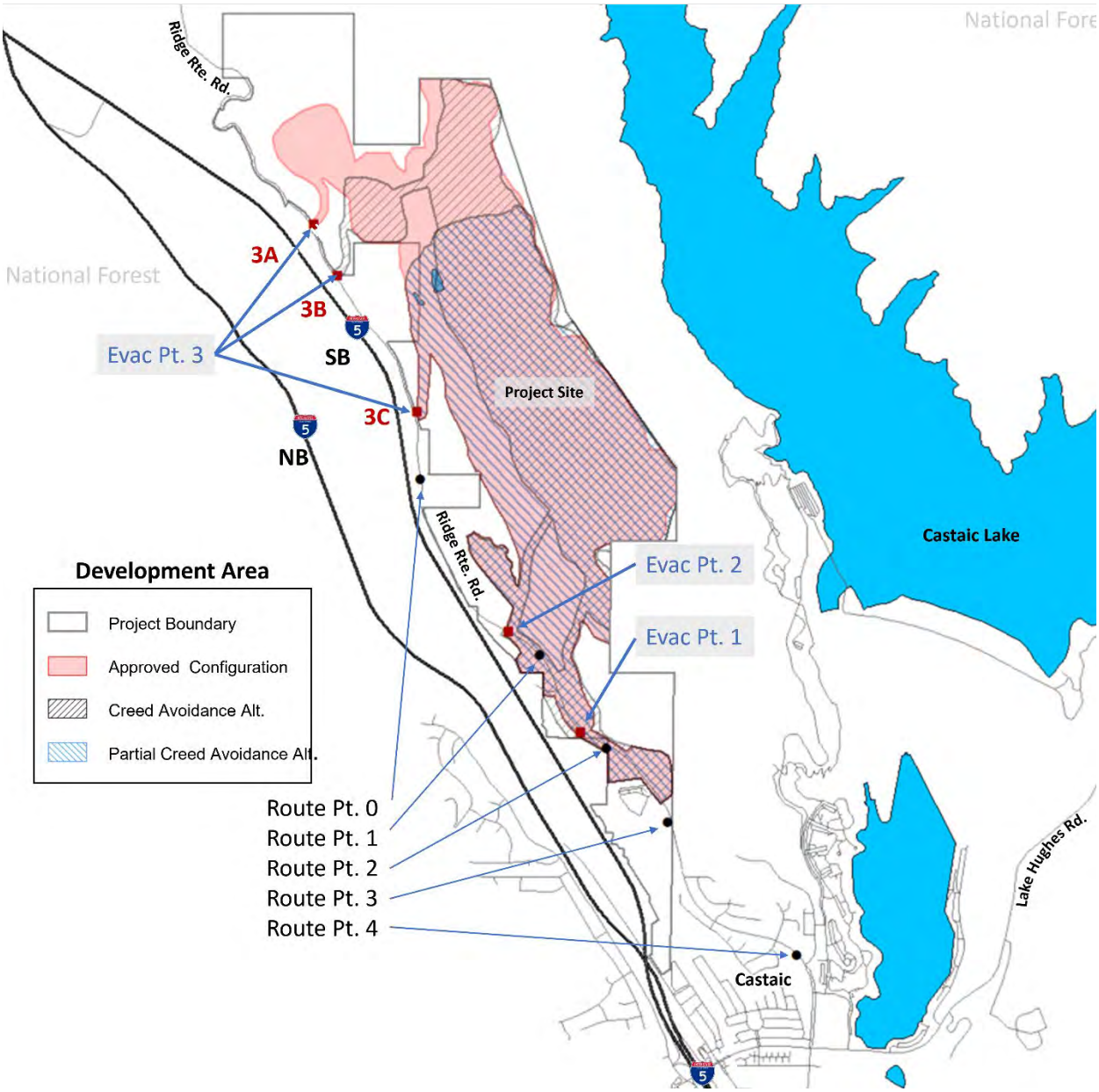


Figure 52 – Evacuation and Route Points

The assumption used here is that the Project Site will not have fire burn through (structures and landscape acting as fuel for the fire) as it will be constructed to the current building standards for wildland interface and all of the residential units will be protected by automatic fire sprinklers as required by the California Building and Fire Codes.

Evacuation from wildfires is a complicated process; assessing when to move “at risk” populations, determining if there is sufficient time to safely move them, assembling the resource necessary to institute the evacuation process (notification, routing, control, and dispersing) and

implementation of the plan once established require many inputs and a good understand of future fire behavior (expectations).
While evacuation is a law enforcement function in California, it is done with input or a request from the fire agencies involved. In fast-moving events such as the ones modeled in this report, a combination of actions is likely. Residents closest to the impacted areas should be moved first and then the evacuation area expanded based on risk to the community and/or evacuation routes. It may be necessary to use "areas of refuge" or "shelter in place" for short periods of time in areas which are less at risk or will not be impacted before the evacuation is completed. In no case should evacuations be conducted which places the population at more risk than that of staying in the location they are currently at.

As evidenced by the scenario outputs in Appendix B, the entire Project Site is never impacted at the same time. There is always some portion of the community which is not impacted or has already been impacted and is now no longer a significant risk to the occupants/evacuees. Unlike other disasters like wind events, earthquakes or even flooding, a wildland fire at the Project Site can only impact a portion of the site at any given time. Movement back into the interior of the Project Site improves the safety of those who are still in the community at the time of the fire reaching the site.

Based on the alternative available, the length of time that the evacuation routes are available and the fact that many of the closures (evacuation points and routes) are temporary in nature with areas within the Project Site where evacuees can be held without extreme risk from the fire, evacuation should not be an issue for the Project Site. The traffic engineer has run scenarios to validate the time needed to empty the "at risk" populations and the entire Project Site[1]. Fire will impact portions of the site before the entire site is evacuated but alternatives exist to change routes, use areas of refuge on a temporary basis or shelter population which are not currently at risk until those "at risk" have been moved to safer areas.

[1] Stantec, *Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates*, May __ , 2023

Scenario	Evac Pt 1	Evac Pt 2	Evac Pt 3A	Evac Pt 3B	Evac Pt 3C
1. Route Fire Sim	Prev. Approved Plan – No time constraints CAA – Closes in 90 min* (reopens after 60 min) PCAA – No time constraints	Prev. Approved Plan – 60 min (reopens after 30 min) CAA – 60 min (reopens after 30 min) PCAA – 60 min (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 60 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 60 min* (remains closed)
2. SSWat40Spot	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 60 min (reopens after 30 min) CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 60 min* (remains closed) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 60 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 60 min* (remains closed)
3. SSWat40Line	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 60 min* (remains closed) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 60 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 60 min* (remains closed)
4. Sat40Line	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – No time constraints PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – No time constraints
5. FreewaySpotsat 40	Prev. Approved Plan –30 min (reopens after 90 min) CAA – 30 min (reopens after 90 min) PCAA – 30 min (reopens after 90 min)	Prev. Approved Plan –30 min (reopens after 90 min) CAA – 30 min (reopens after 60 min) PCAA – 30 min (reopens after 90 min)	Prev. Approved Plan – 30 min* (reopens after 90 min) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 30 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 30 min* (reopens after 90 min)
6. LakeSpotsat40	Prev. Approved Plan –60 min* (reopens after 30 min) CAA – 60 min* (reopens after 30 min) PCAA – 60 min* (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – 90 min*(reopens after 30 min) PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 120 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – No time constraints
7. NEat70Line	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 0 min (closed for the first 4.75 hours of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min (closed for the first 90 min of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 0 min (remains closed for the entire duration of the fire)
8. NNEat70Line	Prev. Approved Plan – No time constraint for 4+ hours* (reopens after 30 min) CAA – No time constraint for 4+ hours* (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – 90 min (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan – 0 min* (closed for the first 4 hours of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (closed for the first 4 hours of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 0 min* (remains closed for the entire duration of the fire)
9. Nat70Line	Prev. Approved Plan – No time constraint for 4+ hours* (reopens after 30 min) CAA – No time constraint for 4+ hours* (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan –60 min (reopens after 30 min) CAA – 60 min (reopens after 30 min) PCAA – 60 min (reopens after 30 min)	Prev. Approved Plan – 0 min* (remains closed for the entire duration of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (remains closed for the entire duration of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 0 min* (remains closed for the entire duration of the fire)
10. Templin Trigger	Prev. Approved Plan – No time constraint for 4+ hours* (reopens after 30 min) CAA – No time constraint for 4+ hours* (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – 60 min (reopens after 45 min) PCAA – 60 min (reopens after 45 min)	Prev. Approved Plan – 0 min (closed for the first 6 min of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (remains closed for the entire duration of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (remains closed for the entire duration of the fire) PCAA – N/A

* Evac Point is not Limited at this point but the travel path for ingress/egress is Limited, such as closures on Ridge Route Road.
Green highlight indicates that the exit point will be viable for four hours or more before it is Limited by the fire. Time in Parentheses () is the time period for this the exit is limited.
N/A = not applicable
Source: Wildland Fire Risk Report for the NorthLake Project, 2023

Matrix 1

Modeling Summary

In a worst-case scenario, flame lengths of 50'+/- may be possible when the fire is running upslope, in a continuous fuel bed (SCAL18 sage and buckwheat), in line with the wind, on a very dry hot day. If the fuels were to become six-foot chaparral fuel beds, the flame length could reach 63' (Sh5 fuel). This configuration is not present in the current (fuels prior to the Route Fire) interface and does not seem to have been present in the past in a review of aerial images over the past 30 years except on north facing slopes in small areas which are not below the development area(s) and not likely to produce a self-sustaining maximum fire output burning in equilibrium.

In a review of all flame lengths for all scenarios run in FlamMap, no cells within or adjacent to the Project Site had values greater than those for the worst-case scenario in BehavePlus (Figure 47). Using the Minimum Travel Time feature of FlamMap, it is possible to project the time it might take for a given fire scenario to travel the distance from the origin to each of the evacuation points within the Project Site and when they might impact the Evacuation Points. These results are provided for each scenario in the appendix and summarized in the matrix.

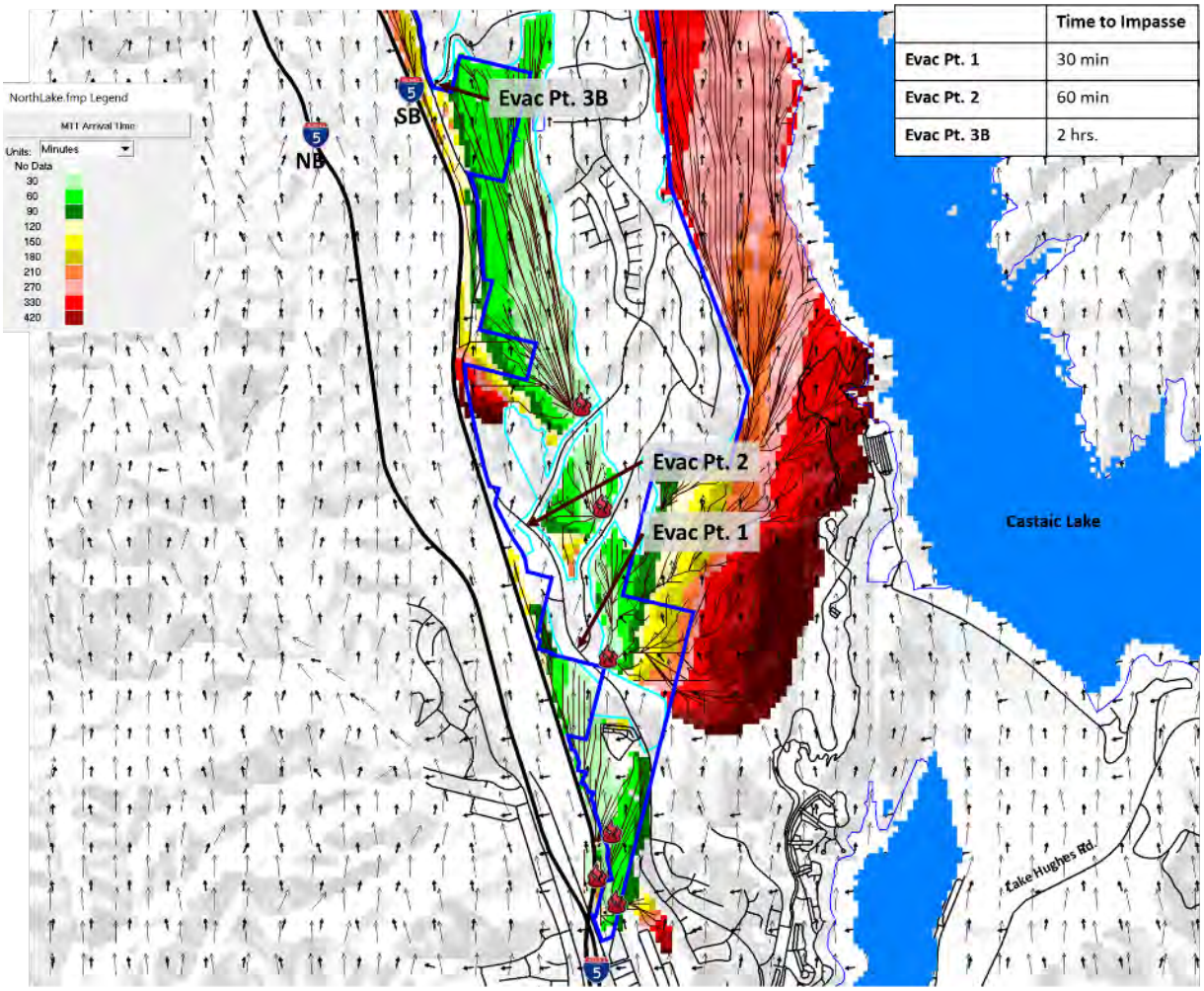


Figure 53 - Creek Avoidance Alternative/Freeway Spots Scenario Modeling Output

All project scenarios have at least one Evac Point which is viable for 4+ hours or more with the exception of the Freeway Spots scenario where only 30 minutes is available prior to a 60–90-minute closure (which would require sheltering within the community). All of the fire scenarios are run under extreme conditions. When in alignment (wind, slope, aspect and fuels), the rate of spread is extremely high and the fire travels large distance in a short period of time. In all scenarios, burn through of the community is not modeled or expected given the fuel modification zones, hardened structures and restrictions on vegetation which will be in place by the Regulation and standards required by the Los Angeles County Fire Department for new development within the Very High Fire Hazard Severity Zones.

The size, location and configuration of the Project Site makes it unlikely that a fire will impact the entire Project Site at a single time, but rather the fire will impact sections of the project interface over a period of time which will allow for resources to be redistributed and for evacuation opportunities after the fire front has pasted a specific location. Travel within the Project Site should be viable at all times given the distance from the wildland fuels and the protection features which will be provided.

Water Supply and Infrastructure

As part of the project, a total of 6 water tanks (5 new and 1 existing) with a combined capacity of approximately 13.35 million gallons (MG), would be located on a total of 3 water tank sites to serve the proposed project. In addition to the tanks mentioned above, the project will construct a water tank site for the benefit of the Newhall County Water District (NCWD). This water tank site, together with future improvements by NCWD, will improve the efficiency and reliability of the overall water system.

The Project Site will be gravity fed from the tanks with fire flow water reserved beyond the daily usage requirements. This allows for the fire flow to be available regardless of the status of electrical power. This meets the duration flow requirements by holding the required amount of fire protection water in reserve in the water tanks beyond the daily use requirements which in addition to the reserved fire flow capacity.

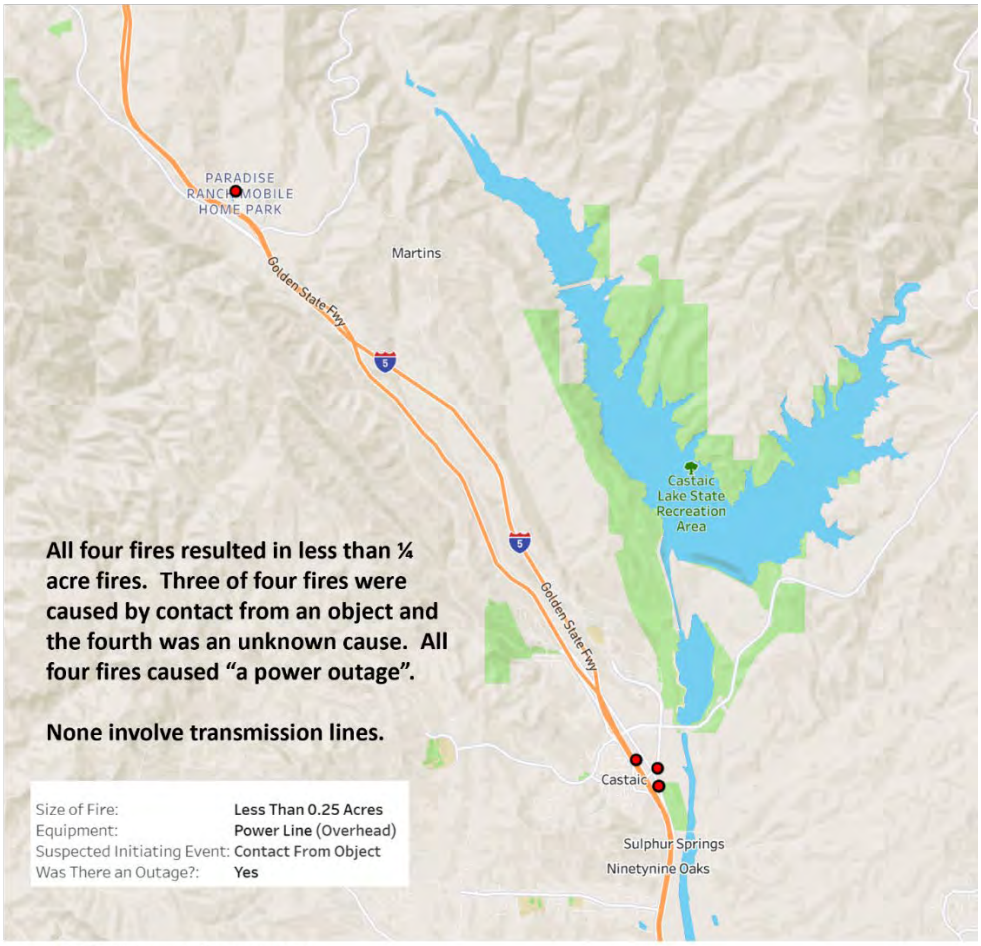
In accordance with the Los Angeles County Fire Code (2020):

> *The minimum fire-flow for one- and two-family dwellings, and Group R-3 buildings located in a fire hazard zone shall not be less than 1,250 gallons per minute (15,141.6 L/min) for a 1-hour duration at 20 psi (138 kPa).*
>
> *For the subdivision of undeveloped land for other than single-family dwellings, due to the undetermined building size and type of construction, the required fire flow shall be 4,000 gallons per minute (15,141.6 L/min) for a duration of four hours with public hydrant spacing of 300 feet (91.44 m). The required fire-flow for the subdivision of land consisting of lots having existing structures shall be in accordance with Table B105.1(2) for fire-flow and duration.*

All power lines within the Project Site will be underground with the exception of the transmission lines, which run across the Project Site but do not directly provide power to the Project Site. The transmission lines are much higher than the distribution lines and do not have vegetation impacts (touching) that are common to the distribution and services lines (majority of power line fires).

A review of the California Public Utilities Commission (CPUC) utility-reported fire incident data as presented by the California State Auditor in the March 24, 2022, report (Electrical System Safety, California's Oversight of the Efforts by Investor-Owned Utilities to Mitigate the Risk of Wildfires Needs Improvement) indicated that only four incidents occurred in the general area of the Project Site. These are shown in Figure 54, below. All four incidents occurred in areas which are not under the Transmission Lines which run through the Project Site.

Utility-Caused Fire Incidents Reported by the Three Largest Utilities From 2015 Through 2020



Source: CPUC's utility-reported fire incident data.

Notes: CPUC requires only the three largest utilities—PG&E, SCE, and SDG&E—to report these fire-incident data. The Camp Fire is not included in this figure. According to the CPUC's wildfire safety enforcement branch program manager, it was not included in PG&E's 2018 ignition report because the investigation of the fire was still open when the data were reported. After we brought this oversight to the CPUC's attention, the program manager stated that CPUC would work with PG&E to obtain amended data for 2018 that includes the Camp Fire.

Electrical System Safety, California's Oversight of the Efforts by Investor-Owned Utilities to Mitigate the Risk of Wildfires Needs Improvement, March 24, 2022, report # 2021-117, https://auditor.ca.gov/reports/2021-117/index.html

Figure 54 – CUPC Utility-reported Fire Incident Data (Report # 2021-117)

While fires are caused by electrical lines all over the state, utilities in the state of California are taking steps to increase the safety of all power lines by:

1. Undergrounding distribution lines
2. Improving safety on transmission lines through the replacement of equipment before it fails
3. Increased routine inspections
4. The use of "covered conductors" rather than "bare wire" as has been used in the past.
5. Expanded line clearance, increased hazard-tree assessments and removals, insuring adequate cleared brush at the base of poles/towers
6. Public Safety Power Shut Offs during high-risk weather events
7. Installing and monitoring of over 2,000 Remote Automated Weather Stations, expanded use of Artificial Intelligence/Machine Learning capabilities (AI/ML) for improved forecasting and the installation of High-Definition Cameras for real time monitoring of high-risk areas during extreme weather events.
8. Installation of Sectionalizing Devices and Fast Acting Fuses to decrease the risk of fire inducting events.
   https://www.sce.com/sites/default/files/custom-files/SCE%202022%20WMP%20Update.pdf

All areas within the Project Site and transmission lines which are relocated by the Project Site will be subject to the increased safety requirements.

Fire Protection Resources

Impacts During Construction

Prior to combustible construction on site the LACFD requires that "all weather" fire department access roadways, fire hydrants (or approved water source alternative) and initial fuel modification zones (bare earth is acceptable at this point) are installed and approved prior to the "framing stage". Prior to C of O (certificate of occupancy) the LACFED requires that all fire department life safety system (fire sprinklers, standpipes if applicable), fire lanes, street signs, addressing, wayfinding if appropriate, defensible space requirement and structure hardening as required by the various laws, codes, ordinance and standards enforced by the fire department and building/planning agencies be in place, tested, inspected and approve.

Impacts Over the Life of the Project

Maintenance requirements for each of the safety systems or devices are assigned to specific entities (homeowners, Homeowners Associations (HOA), Local government). Repair/replacement and maintenance of these systems is established in the CCR's for the homeowners and HOA(s), while the local governmental agency is responsible for the public improvements in the Right of Way (ROW). The responsibilities and funding source for the common areas (not in the ROW) are set in the CCR's. Homeowners are responsible in the single-family communities and HOA's in the structures where community ownership of the underlying property or areas of the structure(s) exist.

Fuel Modification Zones, installed automatic fire sprinklers (except the NFPA13D system in one and two family dwellings) and defensible space are inspected by the fire department on a routine

basis (annually or bi-annually in most cases) and in the case of fire sprinklers (NFPA 13 and 13R), they are inspected and certified by third party venders on a five year interval.

Fire Suppression Resources

The Santa Clarita Valley is serviced by the Los Angeles County Fire Department. The regional area is well resourced with 15 current fire stations (See Figure 55, below) and two projected new fire station sites (one within the NorthLake project and FS177, one of three new fire stations to be constructed in the Newhall Ranch project).

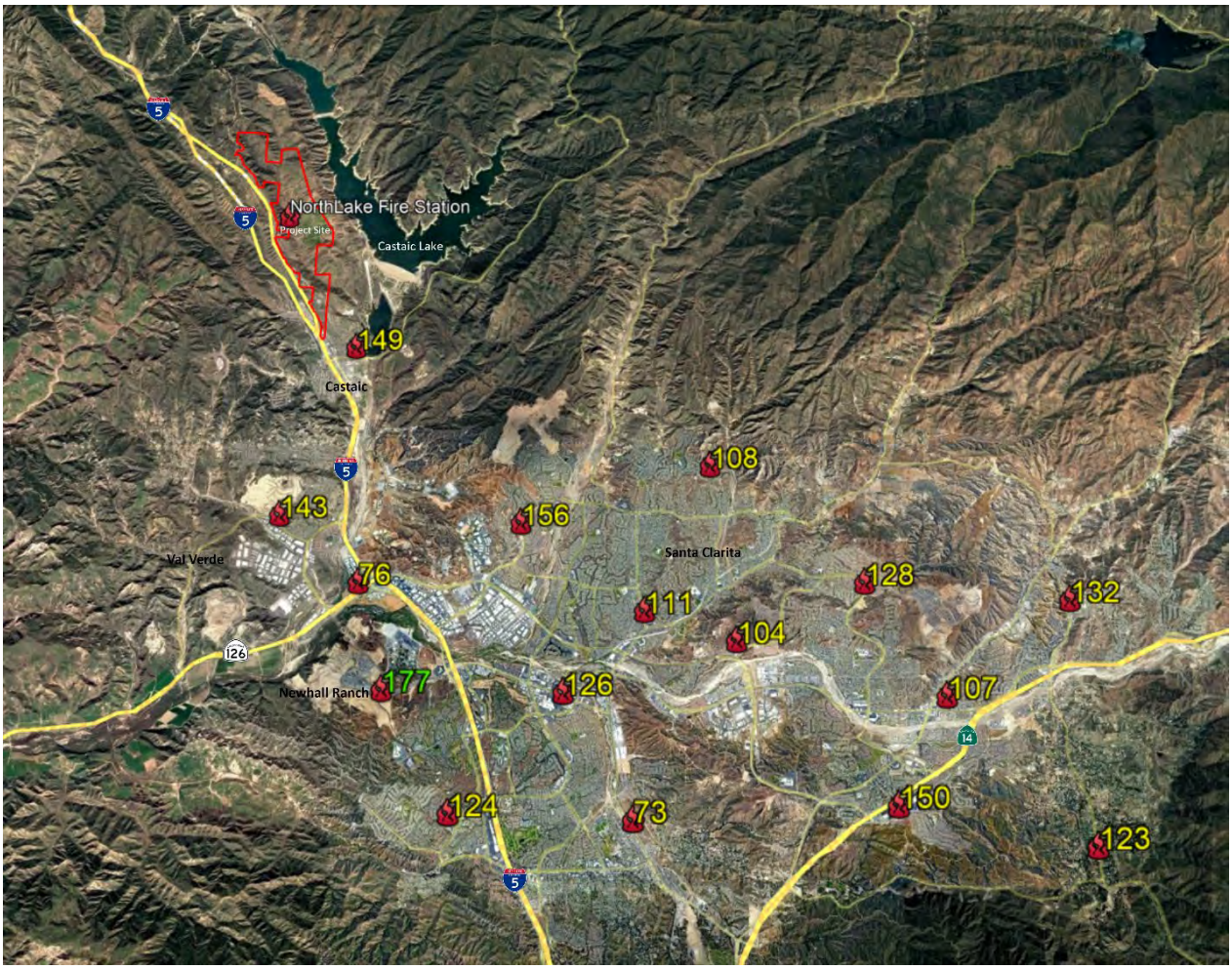


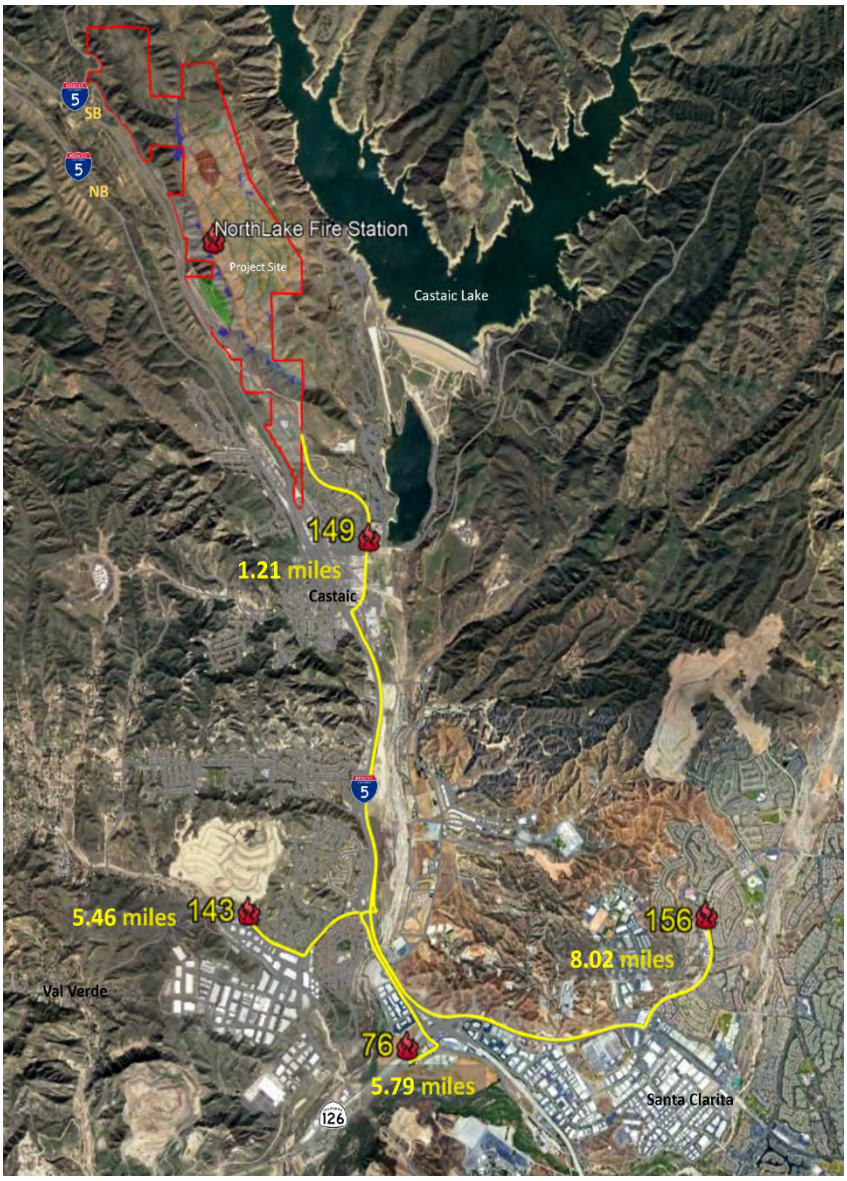
Figure 55 – Regional Fire Resources

The SEIR indicates the following:

> *Wildfire response resources in the Santa Clarita area include the LACFD as well as the Fire Services mutual aid system, the California Division of Forestry, and the U.S. Forest Service (USFS). The combination of forces applied depend upon the severity of the wildfire, other wildfires in progress, and the availability of resources. Suppression efforts can involve fire equipment, heavy construction equipment, and air fire bombardment aircraft in addition to hand crews. In addition to the fire stations discussed above, the LACFD operates nine fire*

suppression camps assigned to the Air and Wildland Division. Fire suppression camps supply crews on a daily basis to assist in the suppression of wildland fires. They also perform storm-related functions, such as the filling of sandbags, and provide additional manpower at search and rescue incidents. Of the four camps located in the Santa Clarita Valley area, two are staffed with paid fire suppression aids, and the other two are staffed by a workforce comprised of adult male prisoners provided by the California Department of Corrections (CDC). This partnership with the CDC provides the Fire Department with a large labor pool. The closest fire suppression camp to the subject site is located at 35100 N. San Francisquito Canyon Road in Santa Clarita. (SEIR, Section 5.5)

The distance from the south Project Site access (Ridge Route Rd.) to the four closest existing fire stations is provided in Figure 56. The Project Site will provide a site for a new fire station within the Project Site boundary and will contribute to the fire station construction through the conditions of approval for development in Los Angeles County. The project is required to pay the LACFD a mitigation fee in the amount in effect as of the Effective Date. This fee payment is in addition to the required conveyance of one fire station site in a location deemed mutually acceptable to the developer and the LACFD.



In addition to the 177 fire stations under the fire departments direct control, LACFD participates in several mutual-aid, auto-aid and cooperative agreements with neighboring fire department, state and federal fire agencies and has access to resources from the entire state of California under the California Master Mutual-Aid plan under California Office of Emergency Services.

Figure 56 – Distances to closest four fire station (existing) from southern project boundary on Ridge Route Rd.

Operational Considerations

How, when, how long will it take, and to where are all considerations that need to be considered when making tactical decisions on wildfires. Normally the majority of the effort is put towards fire suppression on the active fireline if conditions warrant it; indirect attack if not. When people are in "harm's way", the situation shifts dramatically. The protection of the egress pathways, the structures themselves and the area where refuge can be found, become the priority.

The decision to "Shelter in Place" is never the first choice. Getting people "out of harm's way" is always the preferred option. Not every scenario can be anticipated, and there will be scenarios that would require the incident commander(s) or field officer of the fire and law enforcement agencies to decide on how to protect the citizens when emergent conditions arise. Below is a simple decision tree for evacuation vs. protecting people in place. Evacuation is always the preferred option but sometimes, circumstances may generate conditions where moving "at risk" population will place them in more danger. It should be noted that most evacuation scenarios are generated from large fires burning into communities. These fires would have already been burning for a period of time and would, no doubt, have been discovered. Emergency personnel would be working on the decisions below to determine where evacuation is warranted. The modeling shows that if the fire reaches certain points, evacuation is not a likely choice. If there is not enough time to safely move the population at risk to an uninvolved area, consideration of where to best protect them is the next action on the decision tree.

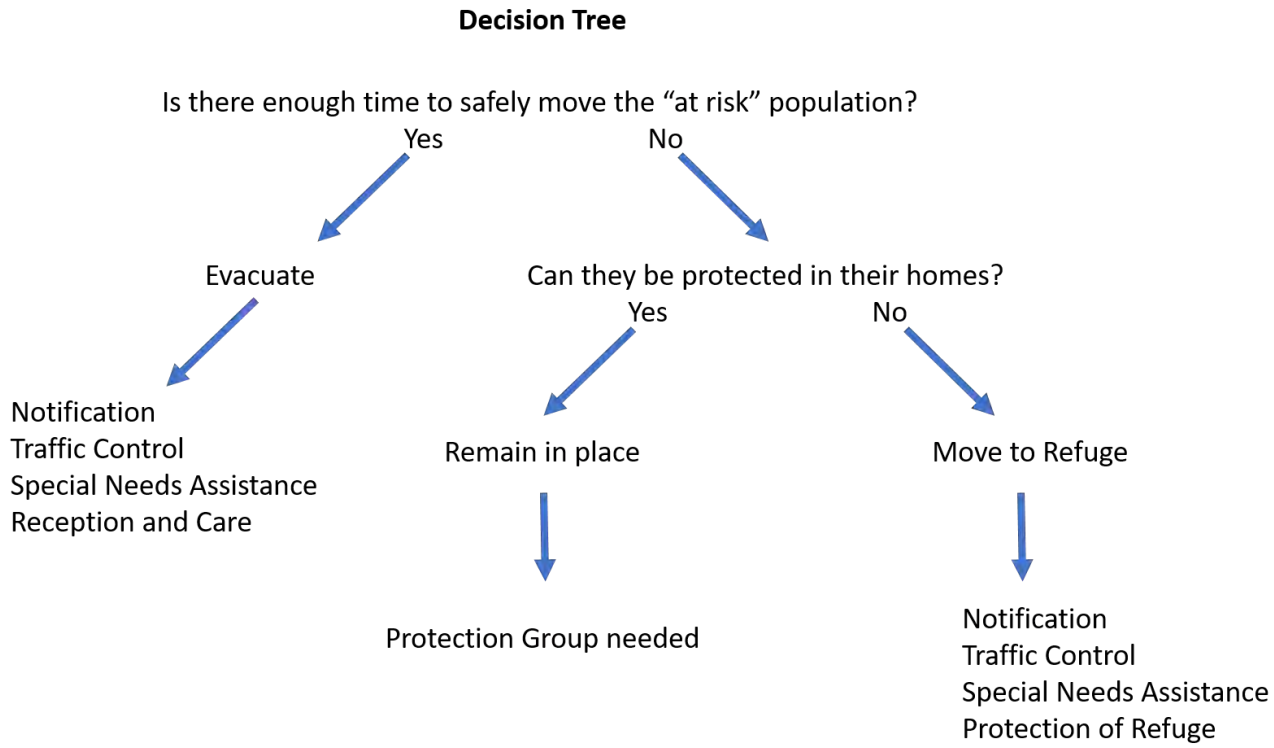


Figure 57 – Evacuation Decision Tree

In planned communities, a legal entity (normally an HOA) is responsible for common areas and the maintenance of community resources. This often includes lighting, landscape, parks, pools

and in some communities' roads, bridges, open space and when the housing products include, joint land ownership, even property insurance. Where the community has been designed and developed with wildland fire defenses such as fuel modification zones, greenbelts, roadside clearance for evacuation routes and/or special maintenance areas within the community, it is the HOA or other legal entity who is responsible for maintaining these common features. As such, there is a high probability that this ongoing maintenance will occur as required and as stated in the organizational documents which were put in place when the community was established. It also makes a single entity accountable and simplifies the inspection process as well as streamlining the communications process (notices, code and standards updates, compliance, verification of maintenance).

Evacuees do not always leave when advised to do so. Some remain to protect their homes. Others do not see the danger or do not accept the idea that they are in danger or will be. Timely evacuation prior to the fire's arrival is key to safe egress. Those who wait to evacuate will be subject to the same impacts as the fire and law enforcement personnel who stay to protect the community. If conditions degrade quickly, everyone is moved to a "safety zone" or "area of refuge" to ride the fire front out. Fire crews identify these areas as the point that they will egress to when fire conditions are too severe to continue the active fire suppression. These areas are often parks, large parking lots (empty of most vehicles), sports fields, large structures made of noncombustible materials with adequate defensible space.

The building and fire codes, and some county and state wildland fire regulations are based on requirements for the land or building owner. As such, there is not necessarily an equal level of compliance at each and every structure, even if they were constructed at the same time, under the same requirements. In wildland fire safety, when structures are not separated by a large distance (30 feet or more), the risk to one structure can be caused by the risk to the adjacent structure even when the first owner has done everything right in terms of wildland fire protection. In planned communities, this is not the case. Common areas are managed as one entity and the HOA has the power to make each homeowner comply with the regulations adopted by the local fire authority as an obligation of its fiduciary function in keeping the entire community safe. This is why planned communities are significantly different in the ability to keep the community safe from wildland fires. This is why a "systems approach" is possible.

This "systems approach" begins with the community design. Larger, planned communities generally tend to use a defined interface rather than an intermix with respect to the wildland perimeter of the development.

Cluster development (higher density with more open space) with defined perimeter protection provides for a "protective bubble" around the development. By controlling the interior (vegetation, configuration and defensible space) and providing an adequate distance (fuel modification, greenbelts, selected agriculture crops (vineyards, certain types of orchards, row crops), fuel breaks and fire breaks) the combination of these elements creates a system for the protection of the community.

The current codes and standards coupled with the design of the current fuel modification zone requirements provides for a community in which fire is unlikely to burn through the community (Burn Through) when all portions of the system are in place and functioning as designed.

Required Wildland Fire Protection Measures

Wildland fire protection measures (including regulatory compliance measures) which were previously required or integrated into the Previously Approved Project and would likewise be required in the Creek Avoidance Alternative and Partial Creek Avoidance Alternative include:

a) All dwelling units will be protected with automatic fire sprinklers.

b) The Project Site has increasing housing density and used a consolidated design to reduce or eliminate, where possible, wildland fuels within the interior of the Project Site and keep the edge of the Project Site as an identifiable interface with appropriate fuel breaks, fire breaks and fuel modification zones.

c) The Project Site has been designed to avoid and minimize low-density urban development patterns or leapfrog-type developments (i.e., those with undeveloped wildland between developed areas).

d) Decreasing the extent and amount of "edge," or interface area, where development is adjacent to undeveloped wildlands.

e) The Project Site has/will create buffer zones and defensible space within and adjacent to the development, with particular attention to ensuring that vegetation will not touch structures or overhang roofs. The Project will establish the legal obligations within the CCR's to ensure that defensible space measures are retained over time.

f) Undergrounding of power lines will be accomplished in the entire Project Site with the exception of the SCE overhead transmission lines which bisect the site.

g) The Project Site design attempts to limit development along steep slopes and amidst rugged terrain, so as to decrease exposure to rapid fire spread and increase accessibility for firefighting. Only a few sites have wildland fuels below (lower than the project structures) the Project Site and these sites will have additional protections provided with radiant heat walls, increased built-in fire protection features and/or placement of the structure so that the impacts of "underslung fuels" are mitigated.

h) Fire hardening structures and homes in accordance with Chapter 7A of the Building Code, Section R337 of the Residential Code and the specific requirements of the fire department during the development review process for the site-specific locations.

i) On-site water supply/storage which is gravity fed to ensure fire flow during power outages for the required duration established in the Fire Code.

j) Siting structures and features to maximize the role of low-flammability landscape features and roadways that may buffer the development from fire spread.

k) The Project will expand existing fire resources in the region.

l) Placement of development within the existing or planned ingress/egress and designated evacuation routes to efficiently evacuate the project population and the existing

community population, consistent with evacuation plans, while simultaneously allowing emergency access.

Additional Measures or project design features which can be used to avoid or reduce wildfire impacts:

a) Provide roadside clearance of 50’ on both sides of all fire access roadways which transit wildland areas where the road is used for evacuation or emergency access.

b) Work with CalTrans for emergency access gates on Ridge Route Road to facilitate a more rapid evacuation process for the Project Site without impact to the existing communities or the Lake Hughes Road interchange.

c) Construction of “area if refuge” within the community for sheltering in the event that evacuation is not possible or practical. This would be possible at the community sports park, the school site and at some of the neighborhood parks.

d) Requiring fire-hardened communication to the Project Site including high-speed internet service.

e) Enhanced communication to the project population about emergency evacuation plans and evacuation zones through community education programs, electronic media avenues, physical signs on evacuation routes and fire risk status.

f) Sponsor twice annual clean up days to rid the community of excessive vegetation, trash, debris or accumulation of tree litter/dead plant materials that have accumulated on or near the structures.

g) Increase fire sprinkler coverage to small spaces and attic for structures protected by NFPA 13D sprinkler systems.

h) Provide increased water reserves levels beyond those required by the Fire Code for the minimum duration of fire flow.

i) Limit undesirable plant materials throughout the Project Site and not simply in the fuel modification and interface areas.

j) Design structures to eliminate concealed spaces by filling them with noncombustible insulation, finishing attic spaces so that attic venting is not necessary, providing positive pressure system to over-pressurize the areas of the structure which are normally susceptible to ember intrusion and/or the use of fire resistance building materials in the areas most at risk for wildland fire penetration (roof sheeting, eaves, decks, underfloor areas, etc.).

k) Creating additional roadside clearance from the Project Site to the Templin Highway interchange at I-5 to allow for greater use of Evac Point #3.

Additional Regional Enhancement

The Genasys Protect is an evacuation management tool that helps communities, and first responders, more effectively plan, communicate, and execute evacuations. It is a platform where residents can look up their addresses using the search bar and use the zone map to find evacuation information for their area.

Pre-established evacuation zones help fire, law, and emergency service agencies prepare for, streamline, and reduce confusion around the evacuation process so that roads are clear for those who need to evacuate quickly. Evacuating the most at-risk zones first, emergency personnel are able to manage the traffic flow and more easily prevent the traffic jams that occur when an entire town or city tries to evacuate all at the same time. The pre-established zones also provide a common reference system for all first responders and the community.

Evacuation routes are always incident-specific because the best route to take is always relative to the location and type of threat. When an emergency evacuation occurs, residents will be asked to check the county's alerts and open Genasys Protect application to review the status of their zone. When it's time to evacuate, residents will be asked to follow the direction of the law enforcement directing traffic.

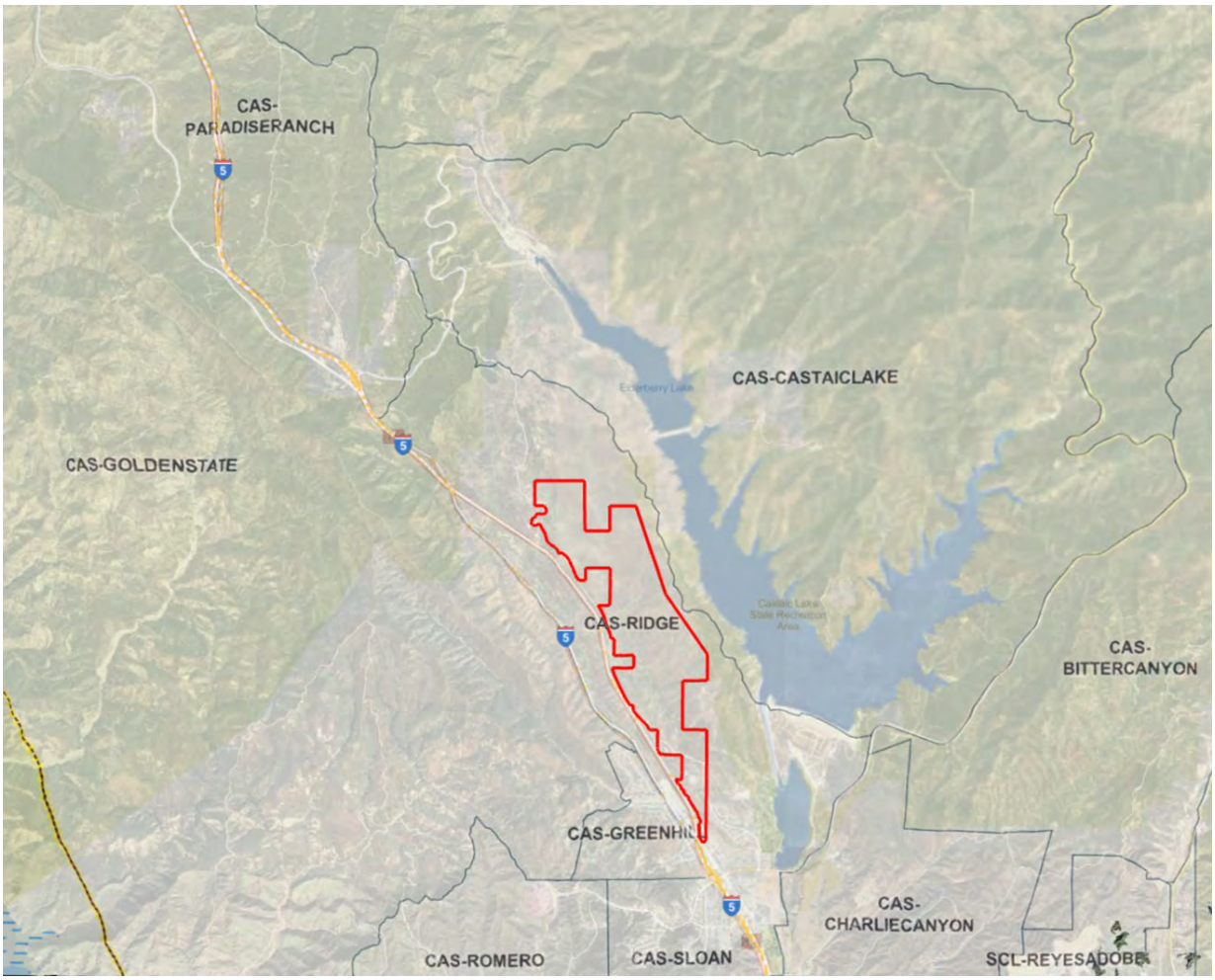
The Genasys Protect mobile app for Apple and Android contains all the same functions as the website, with the additional feature of being able to follow a zone to receive push notifications about status changes to that zone. It should be noted that the Genasys Protect is not a navigation tool like Google or Apple Maps, which means it cannot plot directions or receive evacuation directions.

All zones in Genasys Protect are published by the county and are authoritative. Genasys works directly with each county we serve and all information for a zone or county listed on the site has been approved by the county. The county worked directly with Genasys to add and approve all of the information for specific zones, and the appointed emergency response personnel update the statuses and information during emergencies.

The first three letters represent the city's name or if in an unincorporated area - the county, the E is short for Evacuation, and the last three numbers are the unique code that distinguishes the zone from the others in your area. This system is consistent across your county and makes it easy for first responders to plan and execute evacuations. The zone identifier system provides each zone with a globally unique ID so there is no confusion about which zone is being referred to.

During an incident, first responders may need to split your zone into multiple sections in order to evacuate community members or repopulate a zone in the most effective way. If a zone contains a letter on the end (example: E005-A, E005-B, E005-C), this means that the original zone (E005) was split up into smaller areas for better management of the evacuation.

The project site is with zone CAS-RIDGE, as shown below



Conclusions and Recommendations

A review of the expected fire behavior in the interface of the NorthLake development indicates that the fire behavior could produce extreme fire behavior and as such, mitigation will be necessary. Many of these mitigation measures are required by the State and Local fire/building regulations, fire department standards and guidelines, and by mitigations already considered and applied by the development review processes to the Previously Approved Project. Fire behavior modeling predicts that there will be several hours in which to evacuate the Project Site under fire scenarios where the fire is burning into the community from an adjacent area under each of the development scenarios considered, except with the Freeway Spots scenario, where all configurations will be able to use Ridge Route Road for the initial 30 minutes and then have a period of time where Ridge Route Road is impacts for 90 minutes or more and would require sheltering in place within the development for this period. Where fires are initialized within the Project Site or near its boundary, the fire incident command and control will have to determine if the population will be moved or “sheltered in place”.

The proposed community with its increased built-in fire protection features (defensible space, fuel modification, hardening of the structures and required maintenance), placement of the structures on the topography, overall orientation to the fuels, wind and slope and nested (safe center) configuration would be a candidate for a “shelter in place” decision. While “shelter in place” is never a first option, history shows us that moving populations, once the fire has arrived, has increased risk and should not be attempted when safe alternatives exist.

The configuration of the Project Site, the placement of the structures and features on the topography and the nature of the wildland fuels surrounding the project create conditions where the fire will travel at great speeds when wind, slope and fuel align but the three access points that empty onto Ridge Route Road are not impacted by fire at the same time.

The fire behavior modeling in this report with flame lengths of up to 65’ under the worst-case scenario would be protected by compliance with the LACFD fuel modification standards. Fuel modification is designed to reduce and change the fuel types as the combustible vegetation gets closer to the structure. As “rule of thumb” two times the maximum flame length is adequate protection from radiant heat in a hardened structure. This concept is shown in Figure 58.

These distances also protect from direct flame contact (distance greater than flame length by a factor of two) and convected heat (less impactful than the radiant heat distance as discussed previously). The structure hardening (including ember intrusion protection) protects from embers and brands which may travel long distances under worst-case conditions.

With respect to the defensible space distance for the perimeter structures, the LACFD requires distances up to 200 feet of fuel modification depending on the adjacent fire potential as measured by the slope, aspect, fuel characteristics, fire history and weather data (wind, temperature and relative humidity). While the distance required in the thinning zones may be allowed to be reduced based on the level of hazard present, the zones nearest the structures are rarely reduced.

Additionally, the implementation of the Zone 0 (first five feet from the structure) and LACFD’s decision to make the fuel modification zone on all sides of the structure and not just the wildland interface will only enhance the already robust level of protection for the Project Site.

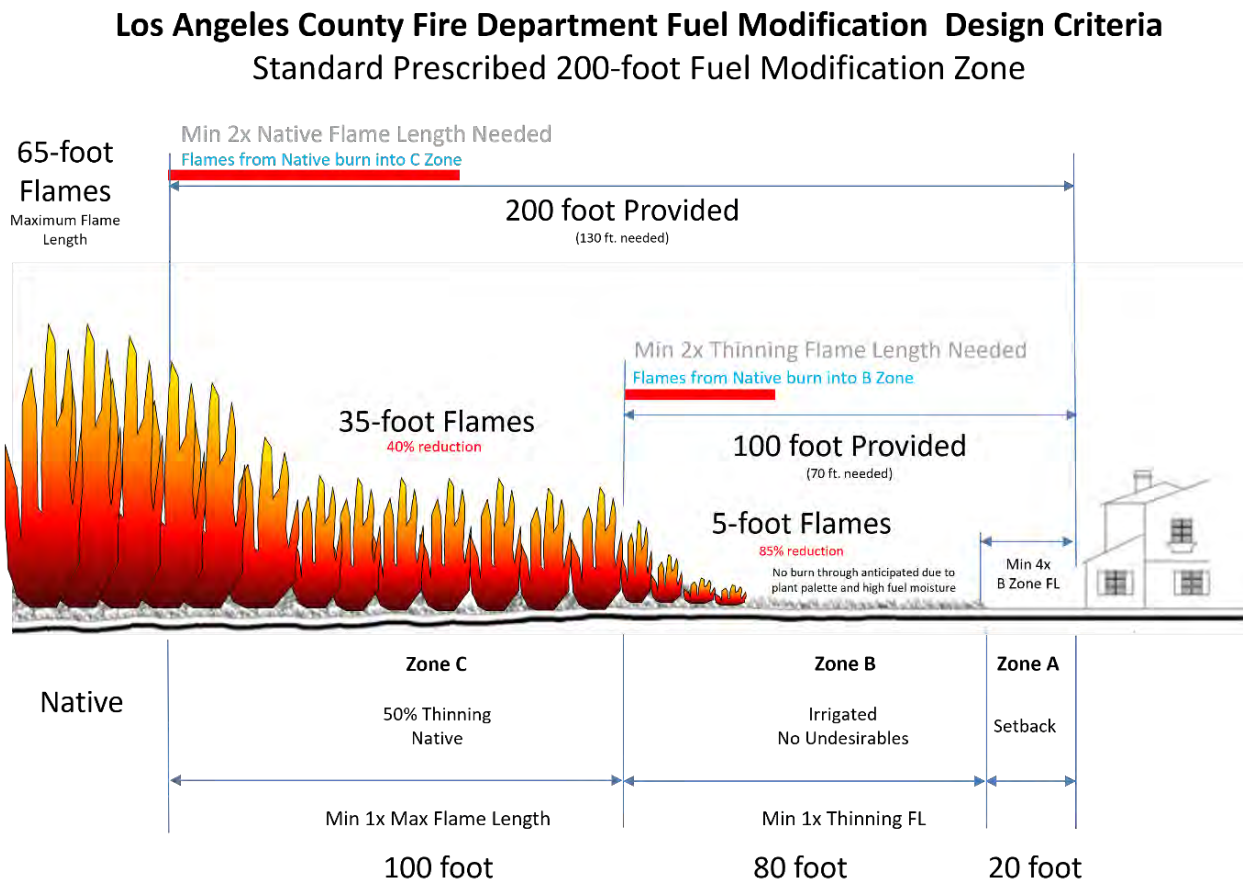


Figure 58 – Fuel Modification Zone Design Criteria

With respect to the tasks as outlined in the California Attorney General's "*Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act*" the report has the following conclusions:

1. **Determination if project impact will substantially impair an adopted emergency response plan or emergency evacuation plan;**

   The Project Site general area does not have an adopted emergency evacuation plan. The emergency response plan will be enhanced with the addition of the new fire station and improvements to the public roadways. The evacuation analysis for this Project will be the first formal process that can be found in a search of the available records. Previous evacuations in the area from several incidents over the past years have provided the emergency staff with experience that is helpful for future actions. One example is the closure of Interstate 5 due to an emergency. In previous closures, the action was to take traffic off the freeway at Lake Hughes Road which results in almost immediate gridlock. Shutting the freeway at Hasley Canyon Road or State Route 126 provides for better redirection of the freeway traffic and leaves the Castaic area more evacuation options.

   From a wildland fire perspective, the Project Site will not substantially impair an adopted emergency response plan or emergency evacuation plan. Project Site specific plans will

be completed as an integral part of Resident Information and Community Communications efforts by the Project Site sponsors, builders and the ultimate HOA's who will have the ongoing responsibility for this information.

2. **Determine the project-specific Wildland Fire Hazard and Wildland Fire Risk to quantify issues that may exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;**

   This report has examined the project specific Wildland Fire Hazards and the resulting Risks after the mitigations are in place and found that the level of Risk that results is no greater than similar communities in the area and generally better than projects constructed prior to the current Regulations. The Project Site has three egress points which are available for evacuation efforts should law enforcement deem it necessary. Additionally, the combination of fuel modification, hardened structures, the placement of the structures and features on the topography relative to the wildland fuels creates a community that is capable of "sheltering in place" if necessary. While never a first choice by emergency service providers, if moving the population is a greater risk, this community as designed and as it will be constructed is capable of a sheltering operation without undue risk to the residents.

   All fire scenarios that have been modeled have at least one Evac Point which is viable for 4 hours or more with the exception of the Freeway Spots scenario where only 30 minutes is available prior to a 60 to 90 minute impact where it would be necessary to shelter within the community until the fire passed this point and the egress route is reopened. It should be noted that, by the time the fire reaches the third evacuation point, the first point is available for use by traveling through the center of the development area. All of the fire scenarios are run under extreme conditions which have been recorded in previous fires or which are likely to occur in the future; they are worst-case scenarios.

   Evacuation reduces exposure to pollutant concentrations generated by a wildfire. The combined effects of the fuel modification, roadside clearance, wildland fire building code requirements and the design/placement of the structures on the topography work together to protect the community from a wildfire. The Project Site will, in fact, provide a buffer to some of the existing communities by removing or modifying the wildland fuels which are upwind from them.

   With the fuel modification and roadside clearance in place, the probability of a fire originating from the Project Site is lower than the adjacent communities without this protection. In order to access the wildlands, it will be necessary to traverse either the 200' fuel modification zone or the 50' roadside clearance zone. Ignitions from the normal sources associated with development will be much less likely to occur.

3. **Determine if the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;**

   All of the improvements for the Project Site have been identified and analyzed for their impact on the environment in the CEQA process. None of the Project Site infrastructure will exacerbate the fire risk for the Project Site. In fact, the improved water supply for the general area, the placement of fuel modification zones and the establishment of a community which has the option to "shelter in place" if needed provides an alternative to the existing residents where this level of protection does not exist. If evacuation to the south is not possible, nearby communities would be safer in the Project Site development areas than they would be in some of the current neighborhoods due to the added protections provided in the Project Site.

4. **Determine if people or structures will be exposed to significant risks due to the completion of the project; and**

   The required wildland fire protection features identified in this report, will keep the residents and the structure of the Project Site protected from significant risk by the required Regulations, the manner in which the Project Site will be developed (clustered development with a definable interface vs an intermix community). The risk from wildland fires for the Project Site will be less than the surrounding communities as the Regulations under which the Project will be developed have significantly increased the level of protection required as a baseline for development projects. The protection measures listed in this report have reduced the hazards in the adjacent native vegetation to an acceptable level of risk under current Regulations.

5. **Consider whether a project will "expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires".**

   As proposed, the Project Site will not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death due to a wildland fire in the native areas adjacent to the Project Site due to the use of Fuel Modification, Defensible Space, Fire Sprinklers, placement of the structure on the Landscape/Topography, the width of the streets, the amount of fire protection water available and the placement of the fire hydrants are specified intervals, the hardening of the structures to comply with the current wildland interface Regulations and availability of firefighter resources within the Project Site and the regional assets available to combat a wildland fire by LACFD and the other associated agencies (CalFire, USFS, mutual aid fire resources, Call when needed fire resources) who routinely assist in the suppression of wildland fire in the region.

It has been determined that, with the implementation of the mitigation measures set forth in this report, the proposed development areas set forth as project configurations (Previously Approved Project, Creek Avoidance Alternative, Partial Creek Avoidance Alternative) will have a less than significant impact from the wildland fire related issues raised under the AG Guidelines, as well

as under CEQA Guidelines Appendix G, Section XX Wildfire. One modeled scenario (Freeway Spots) is a rapid developing event which does require sheltering within the community for a period of time but does not put the residents directly at risk from the fire during this period as the Project Site has been designed to provide for that scenario.

Appendix A
Site Photos Locations

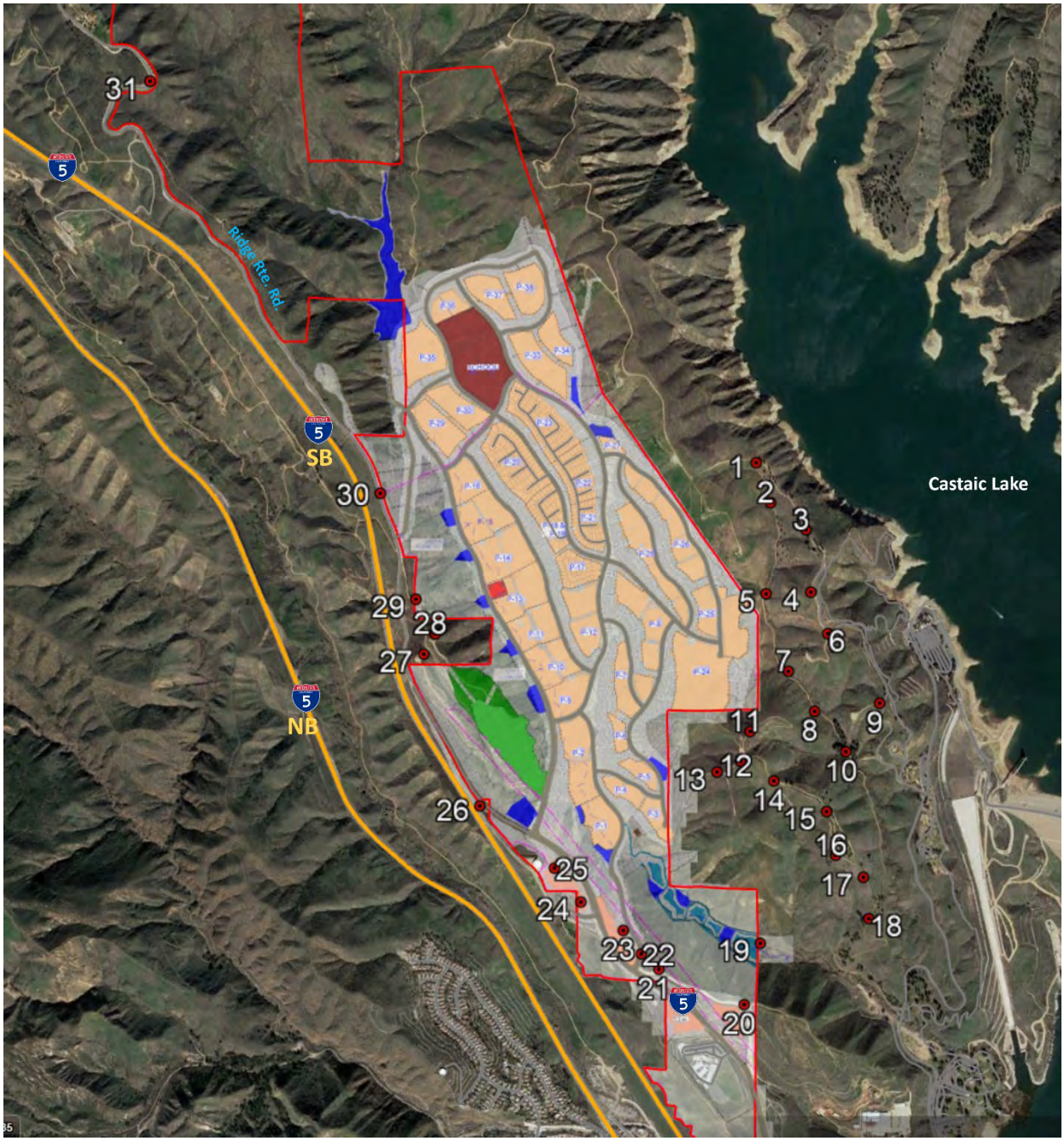


Photo locations are shown on the map above as reference points. Several photos were taken from each general location and are within a few feet of each other. For simplicity, these photo site have been grouped in the locations are shown above.

Photo Site 1 – Looking West



Looking South



Photo Site 2 – Looking West



Looking North



Photo Site 3 – Looking West



Looking Southwest



Photo Site 4 – Looking West



Looking Northwest



Photo Site 4(cont.) – Looking Southwest



Looking South



Photo Site 5 – Looking North Northwest



Looking Northwest from a few feet up the road



Photo Site 6 – Looking West



Looking South



Photo Site 7 – Looking West



Looking Northwest



Photo Site 8 –Looking Northwest



Looking West



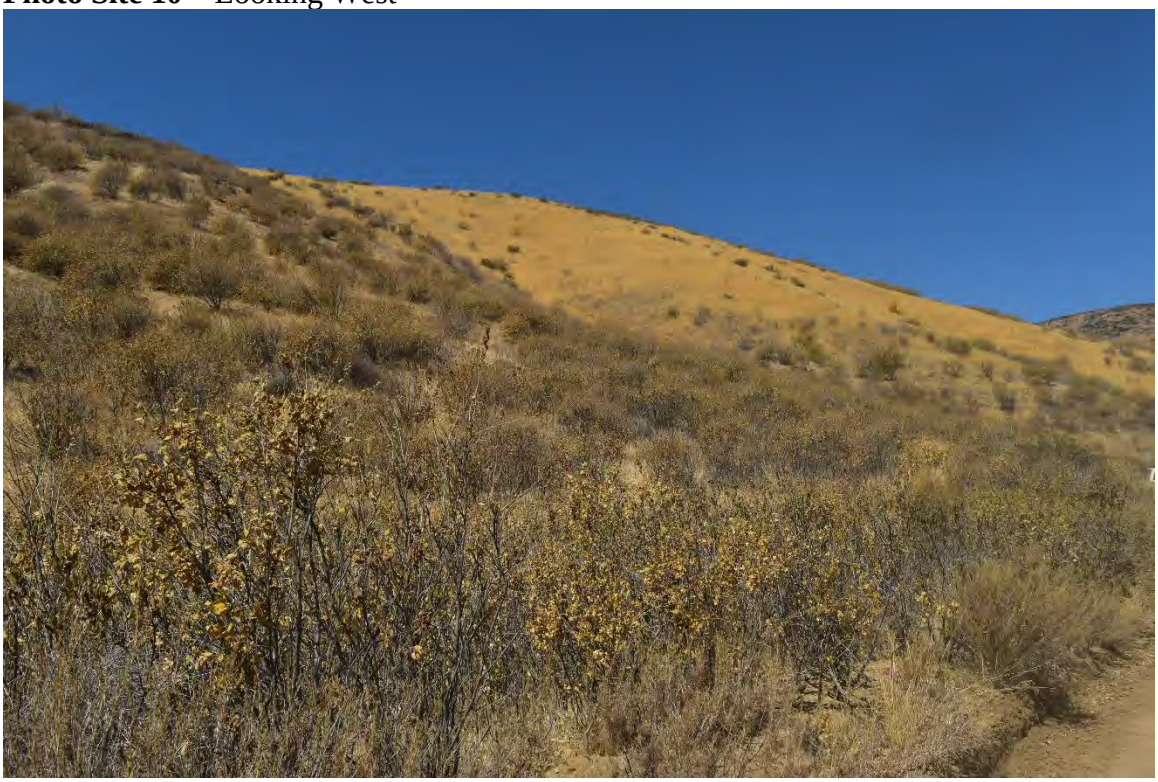
Photo Site 9 – Looking West Southwest



Looking Northwest



Photo Site 10 – Looking West



Looking North Northwest



Photo Site 11 – Looking North



Looking Northwest



Photo Site 12 – Looking Southeast



Looking Southwest



Photo Site 13 – Looking South



Looking Northwest



Photo Site 14 – Looking Southeast



Looking South



Photo Site 15 – Looking Southwest



Looking North



Photo Site 16 – Looking West



Looking North



Photo Site 17 – Looking West



Looking Northwest



Photo Site 18 –Looking Northwest



Looking North Northwest

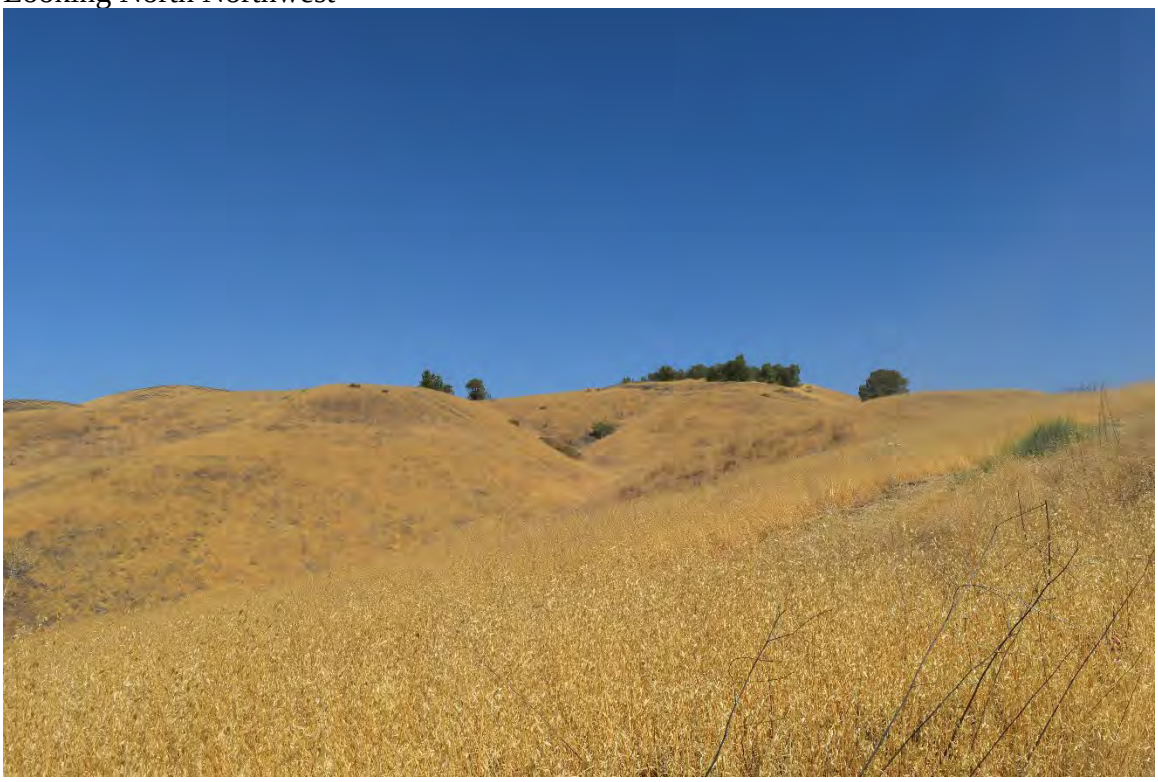


Photo Site 19 – Looking Southwest



Looking Northwest



Photo Site 20 – Looking North



Looking Northwest



Photo Site 21 – Looking East



Looking Northwest



Photo Site 22 – Looking East



Looking North



Photo Site 23 – Looking North



Looking North Northwest



Photo Site 24 – Looking Southeast



Looking North



Photo Site 24 (cont) – Looking Northeast



Looking North Northwest



Photo Site 25 – Looking North



Looking North Northwest



Photo Site 26 – Looking East Northeast



Looking Southeast



Photo Site 27– Looking South Southeast



Looking South Southeast from under powerlines



Photo Site 28 – Looking North Northeast



Looking East



Photo Site 29 – Looking North



Looking Southeast



Photo Site 30 – Looking East



Looking South



Photo Site 31 – Looking Southeast



Same as above zoomed in

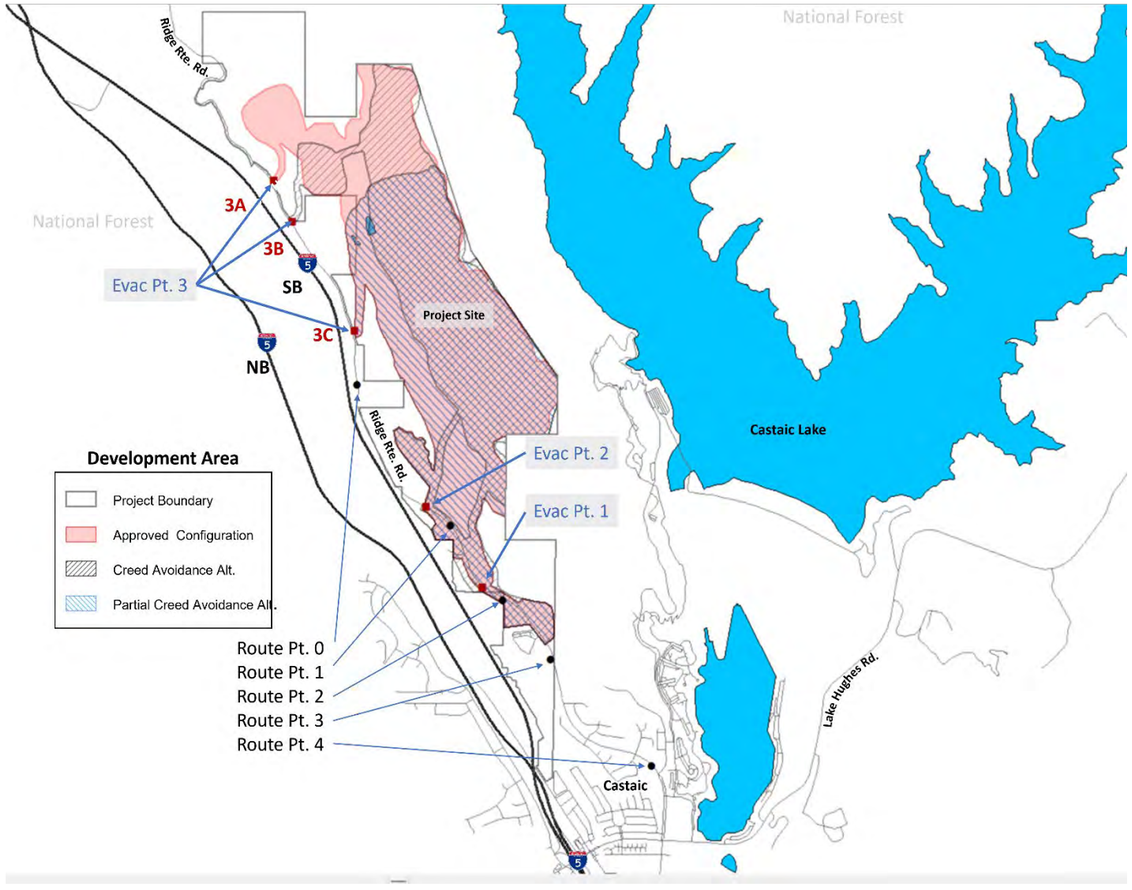


Appendix B - Fire Behavior Analysis Outcomes for Evacuation Modeling

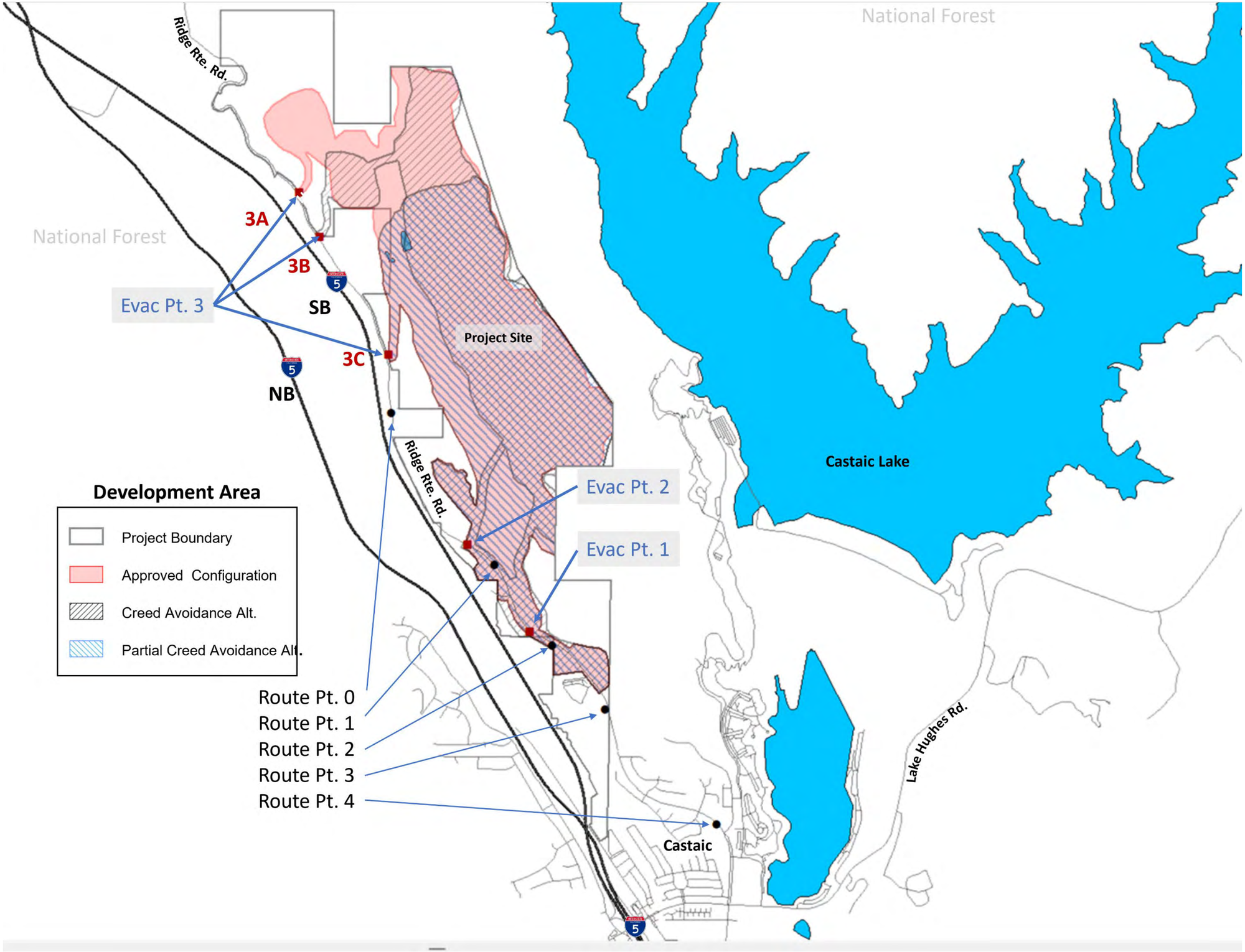
The attached outputs from the FlamMap fire behavior modeling at for the MTT (Minimum Travel Time) module. Every scenario has been completed with each of the three project configurations (Approved, Creek Avoidance and Partial Creek Avoidance configurations). Assumptions on spotting and timeframes are shown on each output. Minutes are used up to 90 minutes and hours are used for longer periods.

Evacuation Points 1 and 2 are identical for all three configurations Evacuation Point 3A is for the Previously Approved Development Configuration, Point 3B is for the Creek Avoidance Configuration and Point 3C is for the Partial Creek Avoidance Configuration as shown on the map below. Route Points are the same for all scenarios.

Each Evacuation Point and Route Point is provided with which when it will be open or closed in 15-minute increments as shown in the sample matrix below. One is provided for each scenario.



Route Fire Sim 25 mph Approved		Evacuation to the South									
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open


Ridge Rte. Rd.
National Forest
3A
3B
Evac Pt. 3
SB
5
3C
NB
Project Site
Ridge Rte. Rd.
Evac Pt. 2
Evac Pt. 1
Development Area
Project Boundary
Approved Configuration
Creed Avoidance Alt.
Partial Creed Avoidance Alt.
Route Pt. 0
Route Pt. 1
Route Pt. 2
Route Pt. 3
Route Pt. 4
National Forest
Castaic Lake
Lake Hughes Rd.
Castaic
5

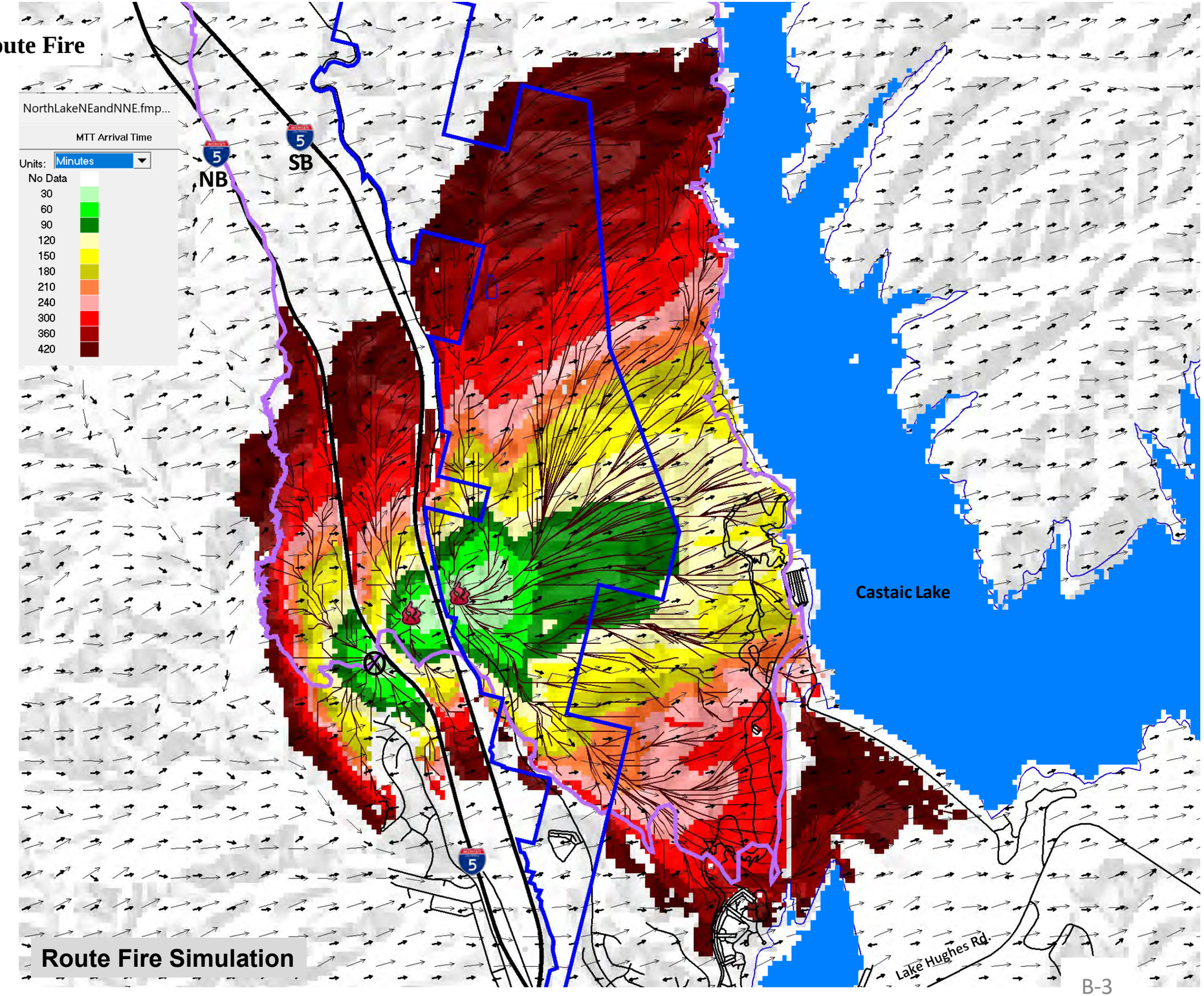
Existing Conditions prior to the Route Fire

This is the Route Fire with 25mph winds (sustained). The fire was made to spot over the freeways and start again.

Purple line is actual fire perimeter (final). Modeling is for the first eight hours of the fire.

- Streets
- Project Boundary
- Freeway
- Development Area
- Route Fire Perimeter
- Wind Direction
- Spread Direction
- Fire Flow Path
- Origin of the Fire
- Spot Fire

WSW wind at 25

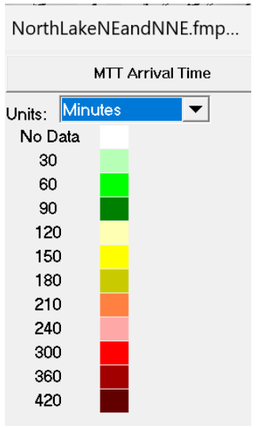


Route Fire Simulation

Existing Conditions prior to the Route Fire
Previously Approved Development Added

This is the Route Fire with 25mph winds (sustained). The fire was made to spot over the freeways and start again.

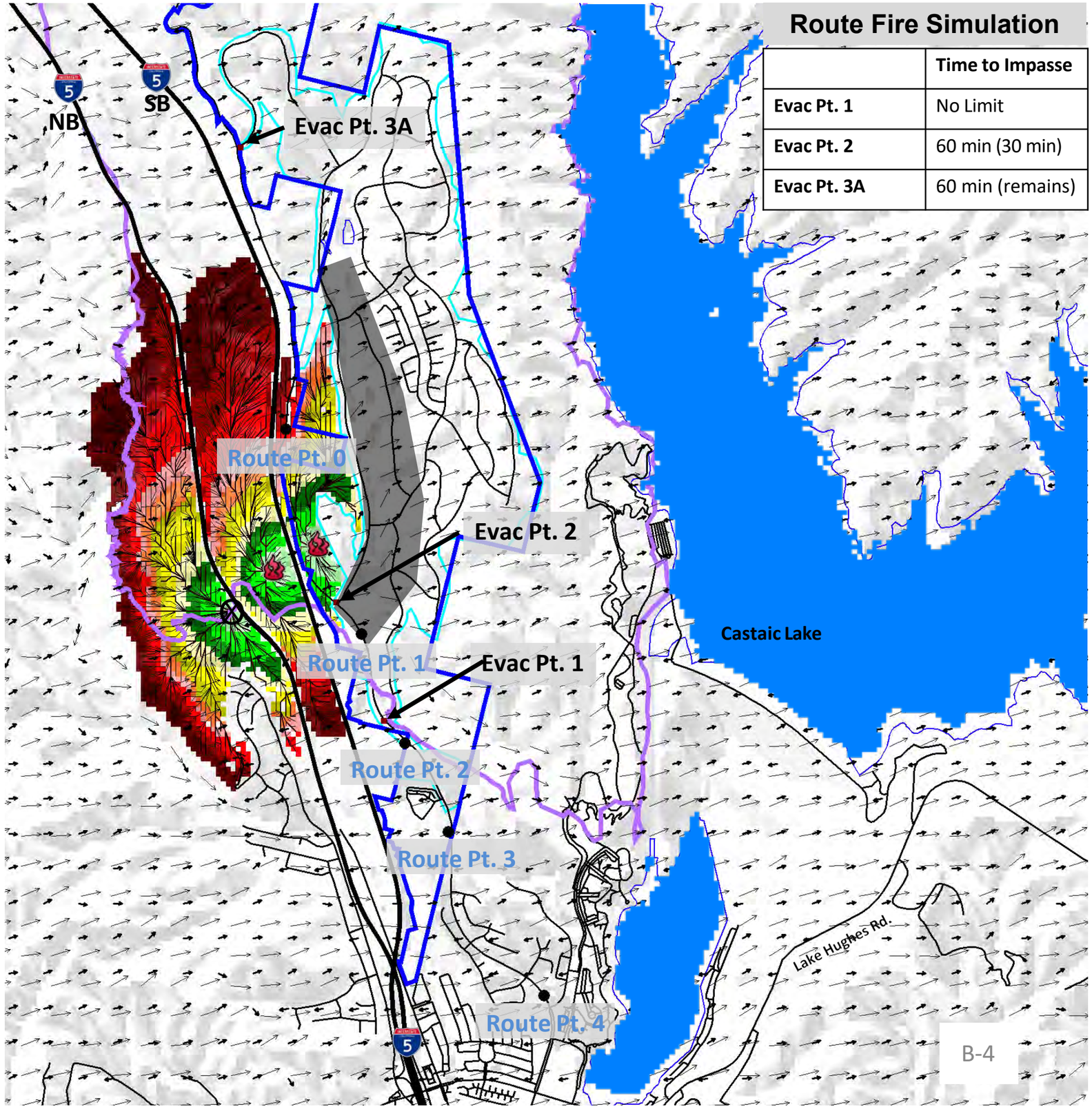
Development is modeled as a barrier (no burn through due to fuel modification, plant pallet restriction and structure hardening)



- Streets
- Project Boundary
- Freeway
- Development Area
- Route Fire Perimeter
- Wind Direction
- Spread Direction
- Fire Flow Path
- Origin of the Fire
- Spot Fire
- Evacuation Point
- Route Point
- Area of Population at Immediate Risk

Origin to first spot 30 min.
First spot to second spot 30 min.

WSW wind at 25



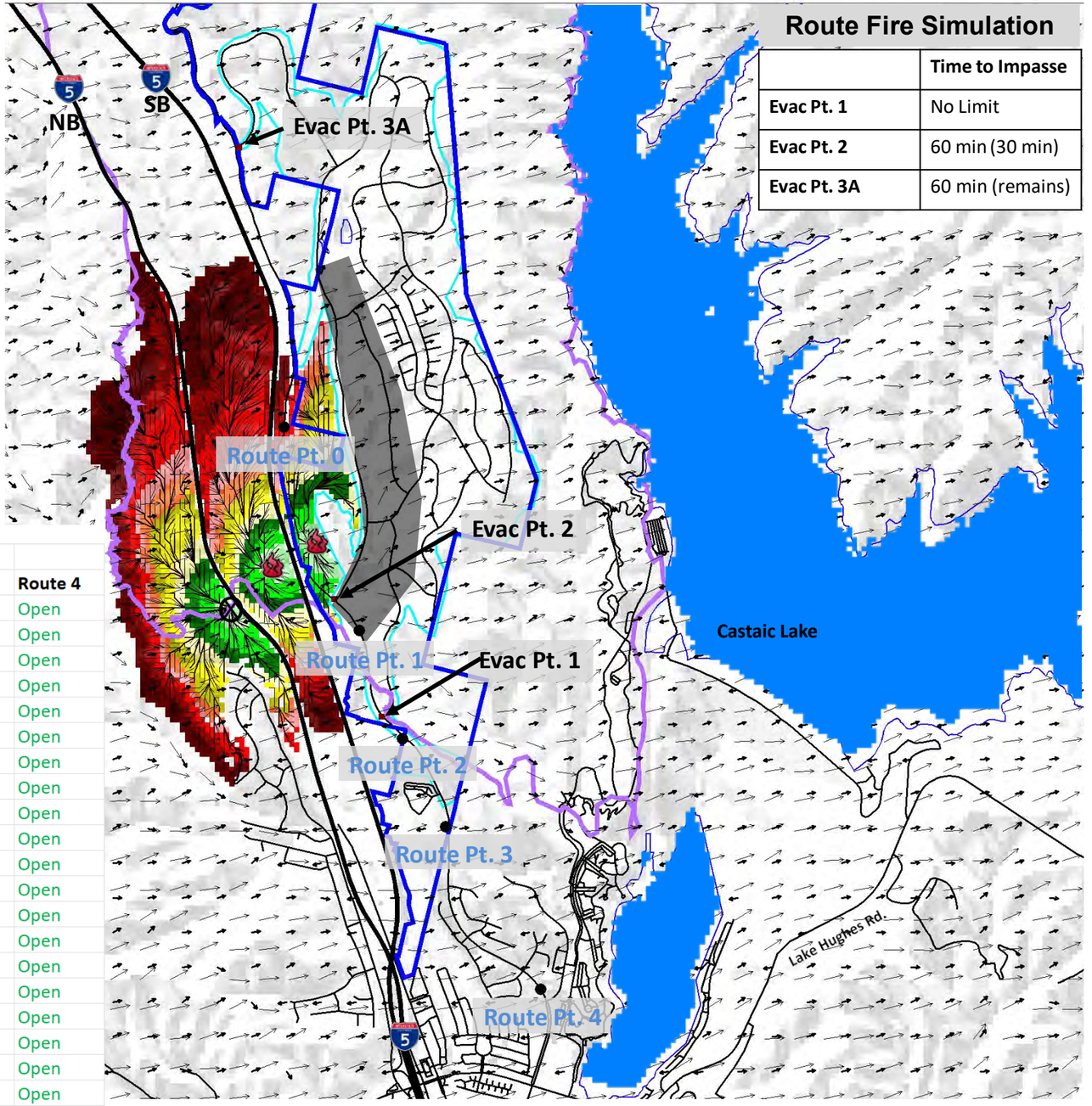
Route Fire Simulation

	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	60 min (30 min)
Evac Pt. 3A	60 min (remains)

Existing Conditions prior to the Route Fire
Previously Approved Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a WSW Wind at 25 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn ENE And spots over the SB I-5 impacting Ridge Route and Evac Point 2 at 60 min (elapsed time) and continues to burn to the north to the north and south along the Project Site.

Route Fire Sim 25 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open



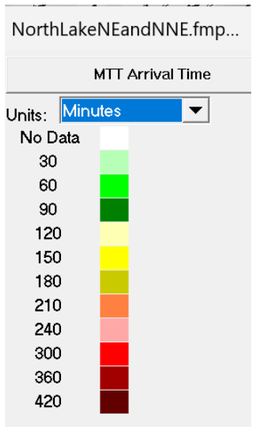
Route Fire Simulation

	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	60 min (30 min)
Evac Pt. 3A	60 min (remains)

Existing Conditions prior to the Route Fire Creek Avoidance Development Added

This is the Route Fire with 25mph winds (sustained). The fire was made to spot over the freeways and start again.

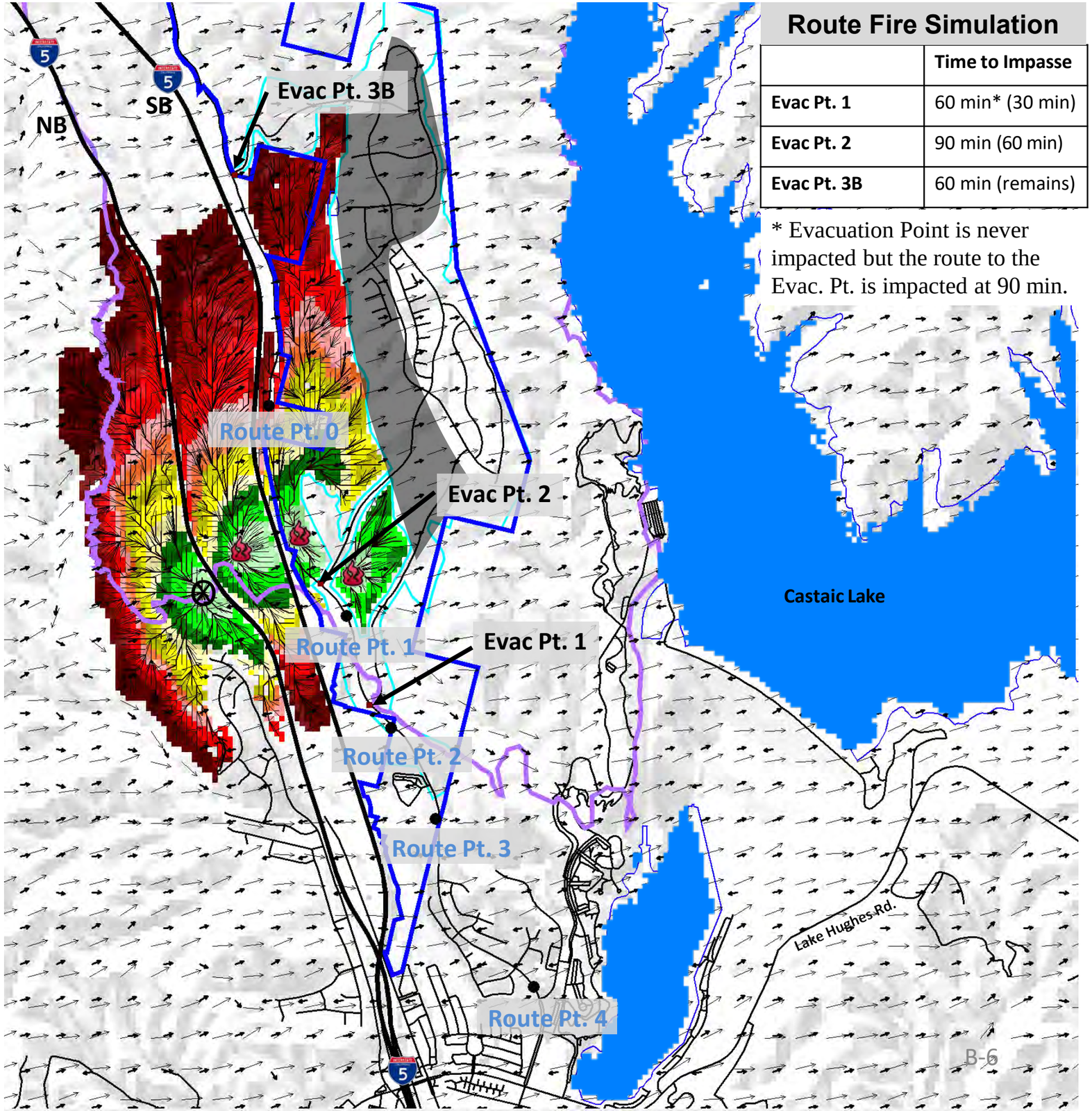
Development is modeled as a barrier (no burn through due to fuel modification, plant pallet restriction and structure hardening)



- Streets
- Project Boundary
- Freeway
- Development Area
- Route Fire Perimeter
- Wind Direction
- Spread Direction
- Fire Flow Path
- Origin of the Fire
- Spot Fire
- Evacuation Point
- Route Point
- Area of Population at Immediate Risk

Origin to first spot 30 min.
First spot to second spot 30 min.
Second spot to third spot 30 min

WSW wind at 25



Route Fire Simulation

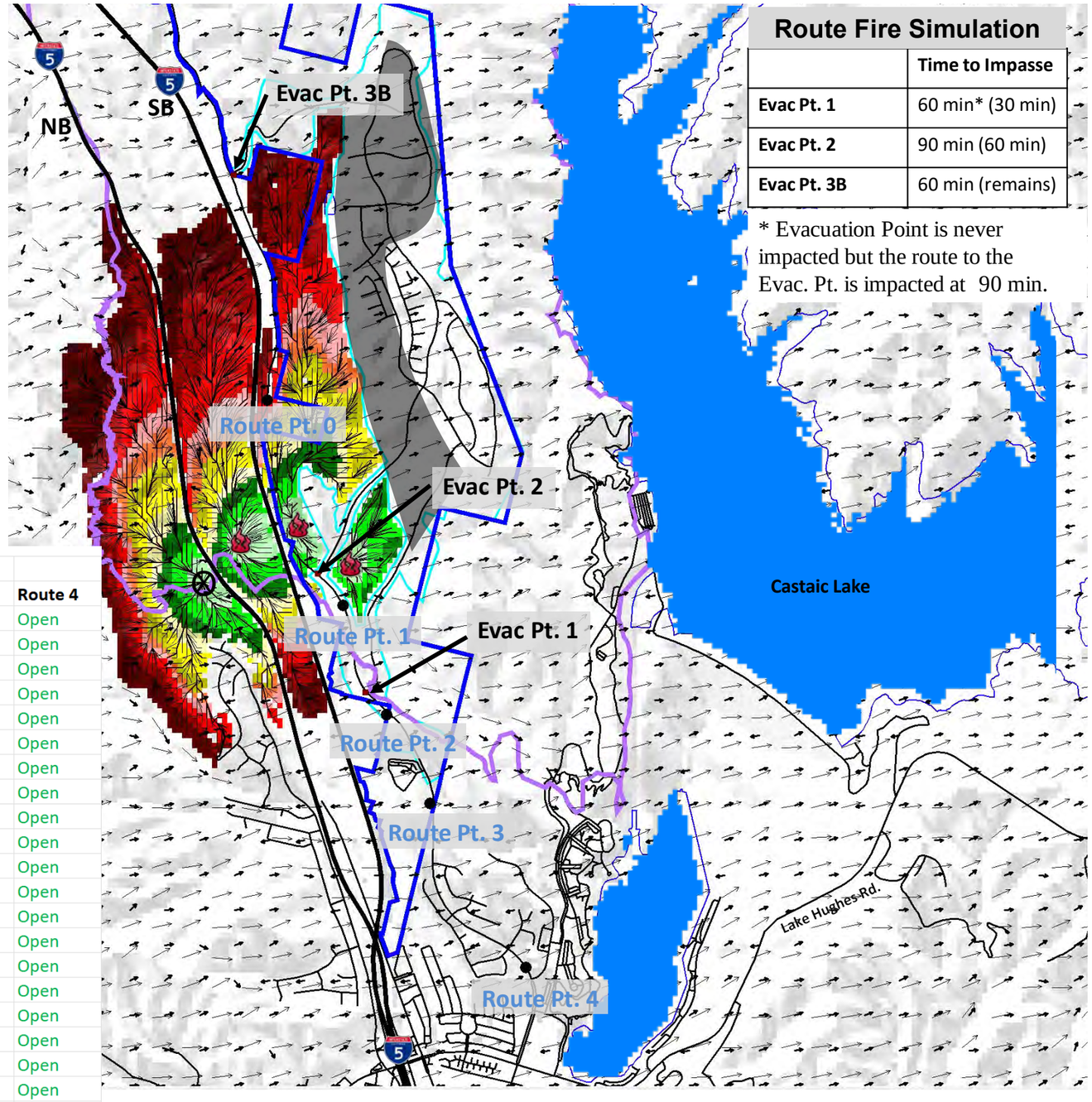
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	90 min (60 min)
Evac Pt. 3B	60 min (remains)

* Evacuation Point is never impacted but the route to the Evac. Pt. is impacted at 90 min.

Existing Conditions prior to the Route Fire Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a WSW Wind at 25 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn ENE And spots over the SB I-5 impacting Ridge Route and Evac Point 2 at 60 min (elapsed time) and continues to burn to the north to the north and south along the Project Site spotting over Evac Point 2 at .

Route Fire Sim 25 mph Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	1:30	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	1:45	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	2:00	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open



Route Fire Simulation

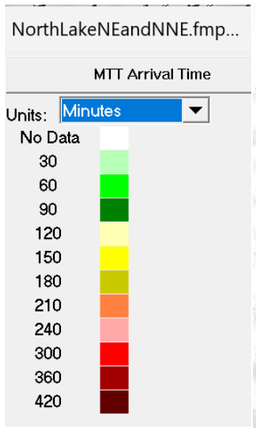
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	90 min (60 min)
Evac Pt. 3B	60 min (remains)

* Evacuation Point is never impacted but the route to the Evac. Pt. is impacted at 90 min.

Existing Conditions prior to the Route Fire Partial Creek Avoidance Development Added

This is the Route Fire with 25mph winds (sustained). The fire was made to spot over the freeways and start again.

Development is modeled as a barrier (no burn through due fuel modification, plant pallet restriction and structure hardening)



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

Evacuation Point

Route Point

Area of Population at Immediate Risk

Origin to first spot 30 min.
First spot to second spot 30 min.

WSW wind at 25

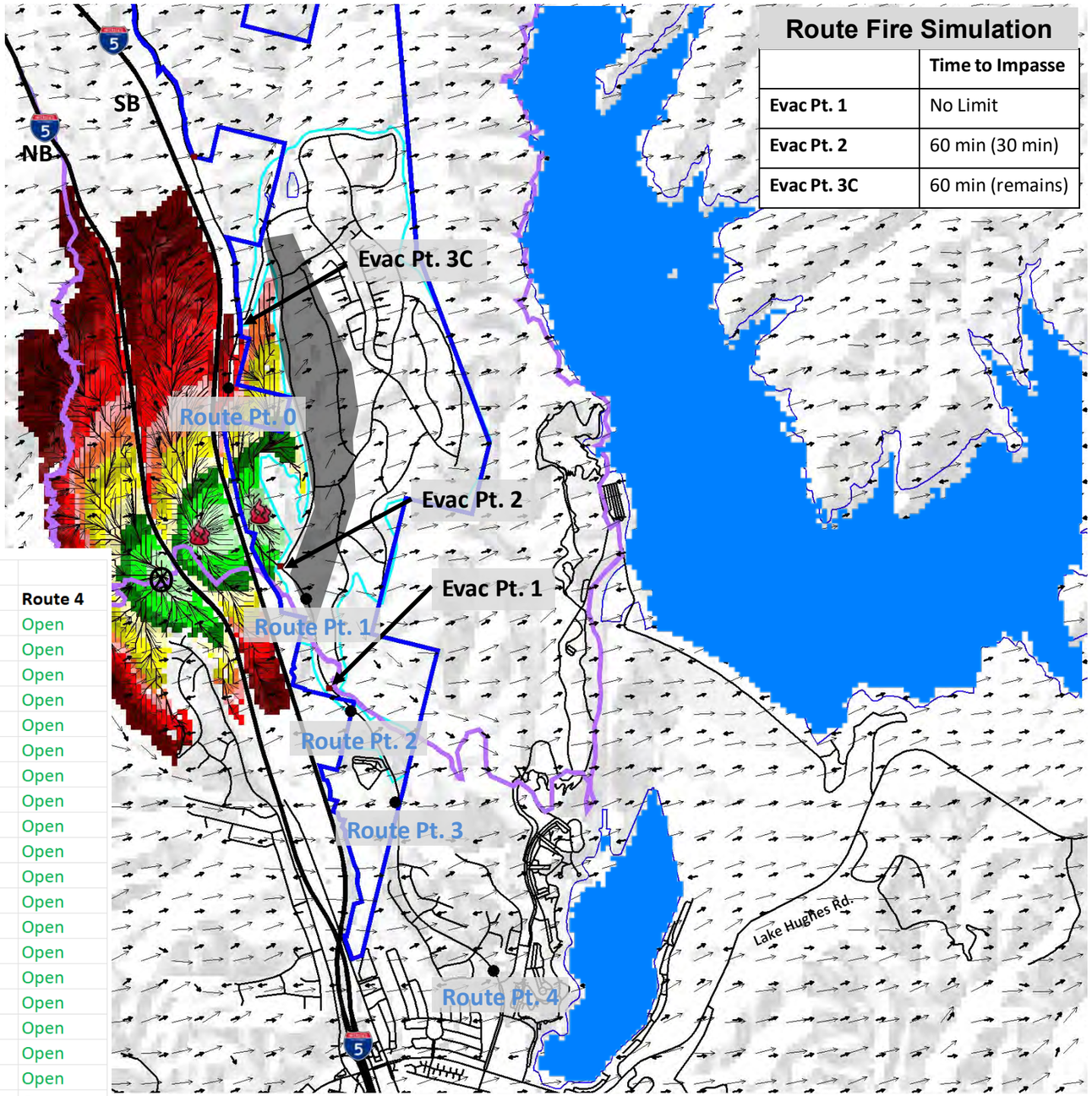
Route Fire Simulation

	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	60 min (30 min)
Evac Pt. 3C	60 min (remains)

Existing Conditions prior to the Route Fire
Partial Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a WSW Wind at 25 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn ENE And spots over the SB I-5 impacting Ridge Route and Evac Point 2 at 60 min (elapsed time) and continues to burn to the north to the north and south along the Project Site.

Route Fire Sim 25 mph Partial Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	**1:00**	Open	**Closed**	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
75	**1:15**	Open	**Closed**	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
90	**1:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
240	**4:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
255	**4:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
270	**4:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open



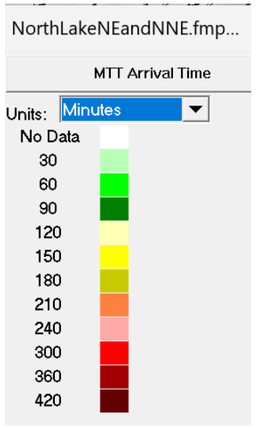
Route Fire Simulation

	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	60 min (30 min)
Evac Pt. 3C	60 min (remains)

Increased Wind Speed (SSW direction)
Previously Approved Development Added

This is the Route Fire with 40 mph winds (sustained). The fire was made to spot over the freeways and start again.

Development shown as modified wildland fuels due to fuel modification, plant pallet restriction and structure hardening



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

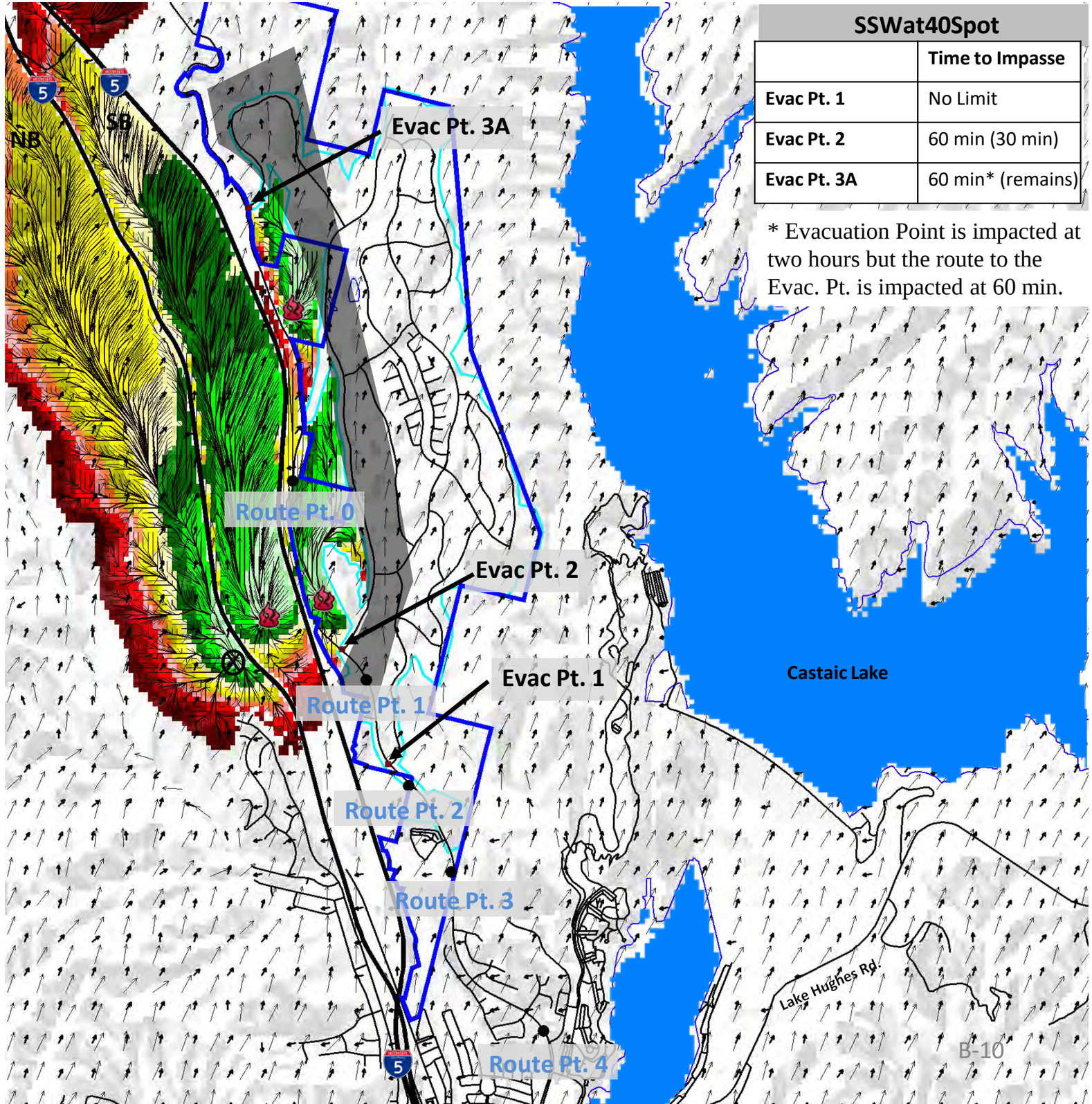
Spot Fire

Evacuation Point

Route Point

Area of Population at Immediate Risk

Origin to first spot 30 min.
First spot to second spot 30 min.
Third spot 60 min.
SSW wind at 40 Spot



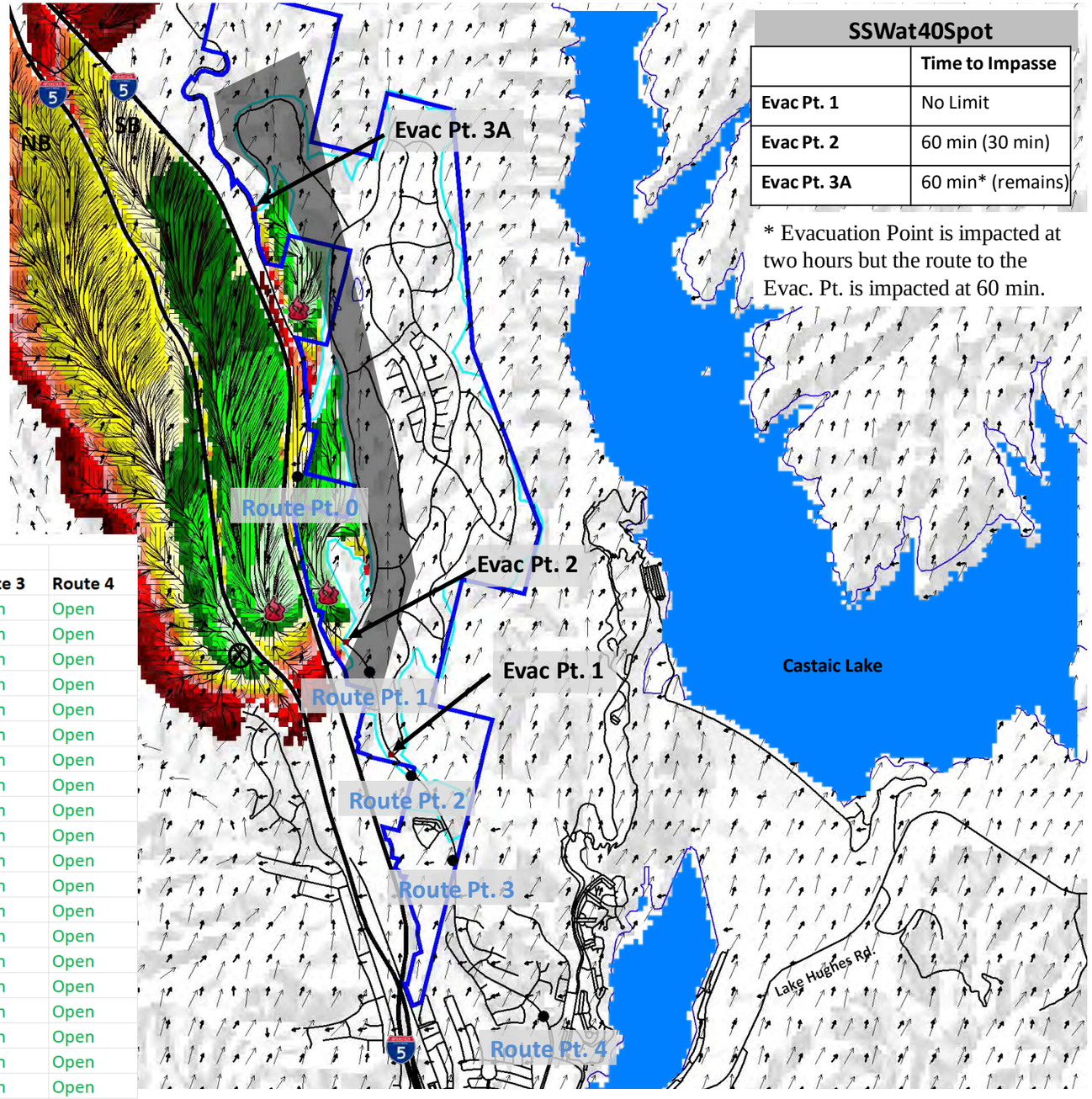
SSWat40Spot	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	60 min (30 min)
Evac Pt. 3A	60 min* (remains)

* Evacuation Point is impacted at two hours but the route to the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Previously Approved Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.

SSW Spot at 40 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	**1:00**	Open	**Closed**	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
75	**1:15**	Open	**Closed**	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
90	**1:30**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
105	**1:45**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
120	**2:00**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
135	**2:15**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
150	**2:30**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
165	**2:45**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
180	**3:00**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
195	**3:15**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
210	**3:30**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
225	**3:45**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
240	**4:00**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
255	**4:15**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
270	**4:30**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
285	**4:45**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
300	**5:00**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
315	**5:15**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
330	**5:30**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
345	**5:45**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
360	**6:00**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
375	**6:15**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
390	**6:30**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
405	**6:45**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open
420	**7:00**	Open	Open	**Closed**	n/a	n/a	**Closed**	Open	Open	Open	Open



SSWat40Spot	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	60 min (30 min)
Evac Pt. 3A	60 min* (remains)

* Evacuation Point is impacted at two hours but the route to the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Creek Avoidance Development Added

This is the Route Fire with 40 mph winds (sustained). The fire was made to spot over the freeways and start again.

Development shown as modified wildland fuels due to fuel modification, plant pallet restriction and structure hardening

NorthLake.fmp Legend

MTT Arrival Time

Units: Minutes

No Data
30
60
90
120
150
180
210
270
330
420

Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

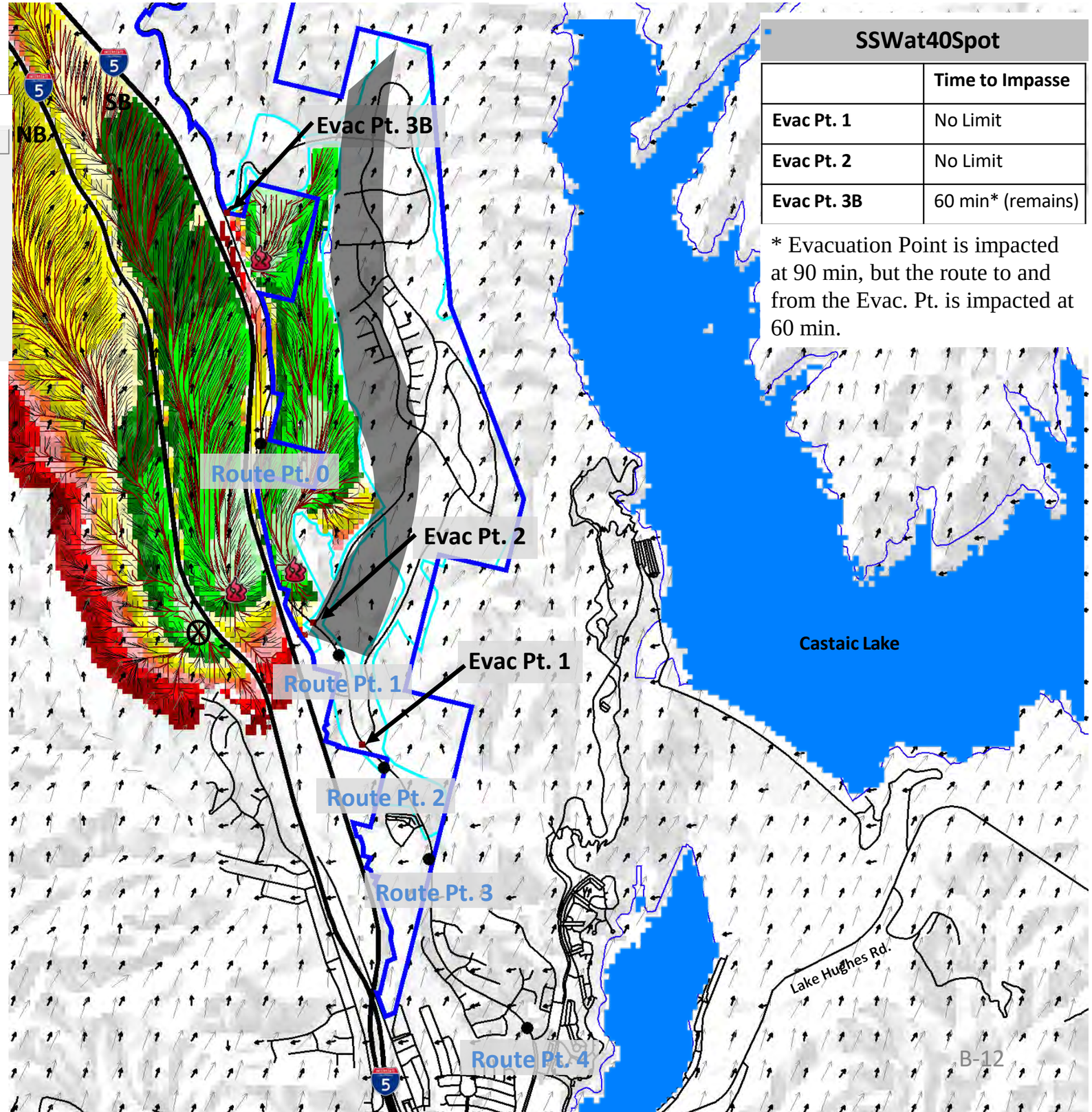
Spot Fire

Evacuation Point

Route Point

Area of Population at Immediate Risk

Origin to first spot 30 min.
First spot to second spot 30 min.
First spot to Third spot 60 min.
SSW wind at 40 Spot



SSWat40Spot

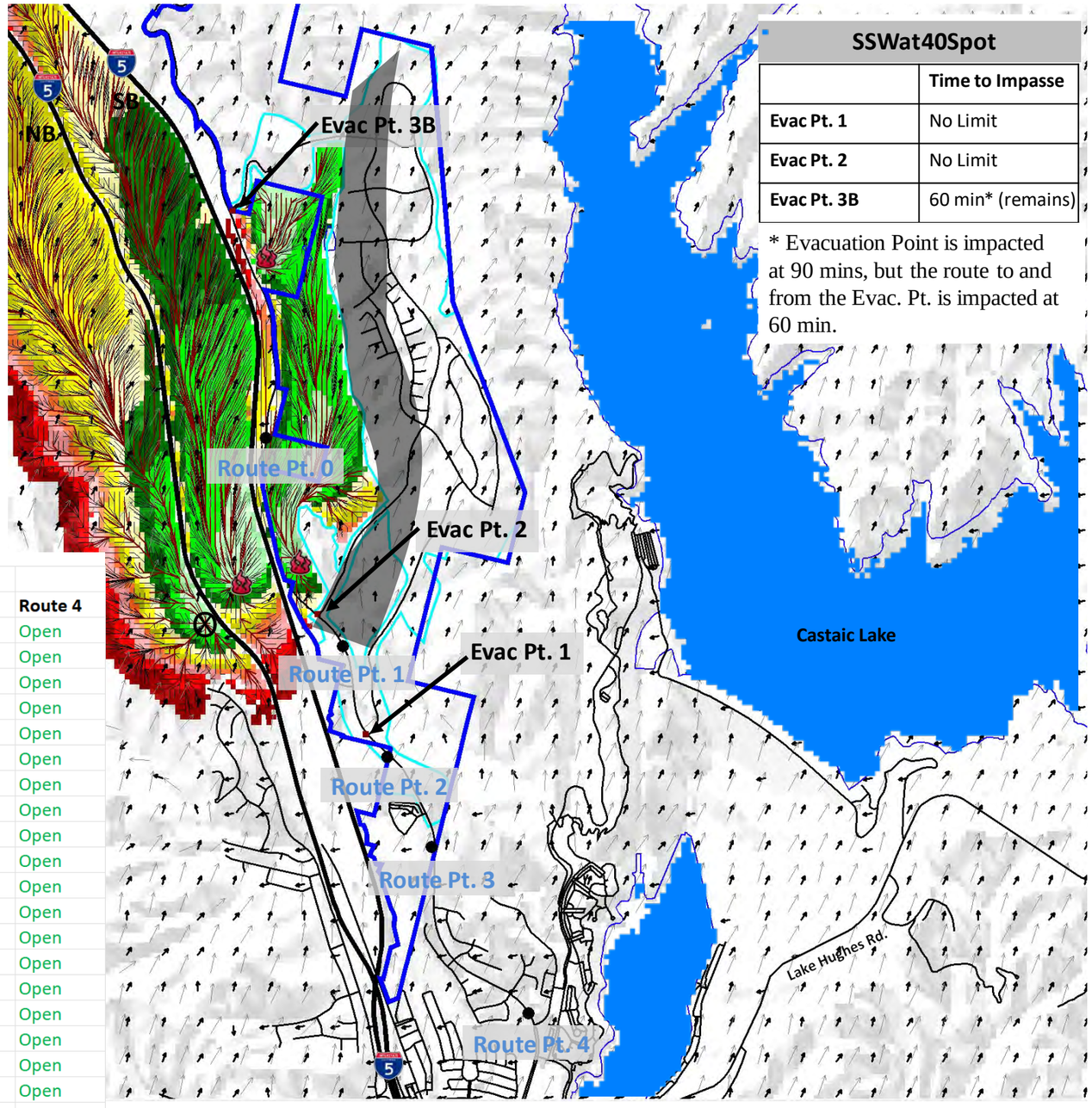
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3B	60 min* (remains)

* Evacuation Point is impacted at 90 min, but the route to and from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.

SSW Spot at 40 mph Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	**1:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	**1:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	**1:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	**4:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	**4:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	**4:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open



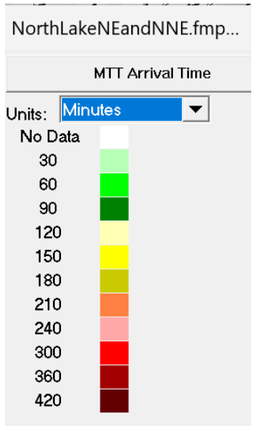
SSWat40Spot	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3B	60 min* (remains)

* Evacuation Point is impacted at 90 mins, but the route to and from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Partial Creek Avoidance Development Added

This is the Route Fire with 40 mph winds (sustained). The fire was made to spot over the freeways and start again.

Development shown as modified wildland fuels due to fuel modification, plant palleted restriction and structure hardening



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

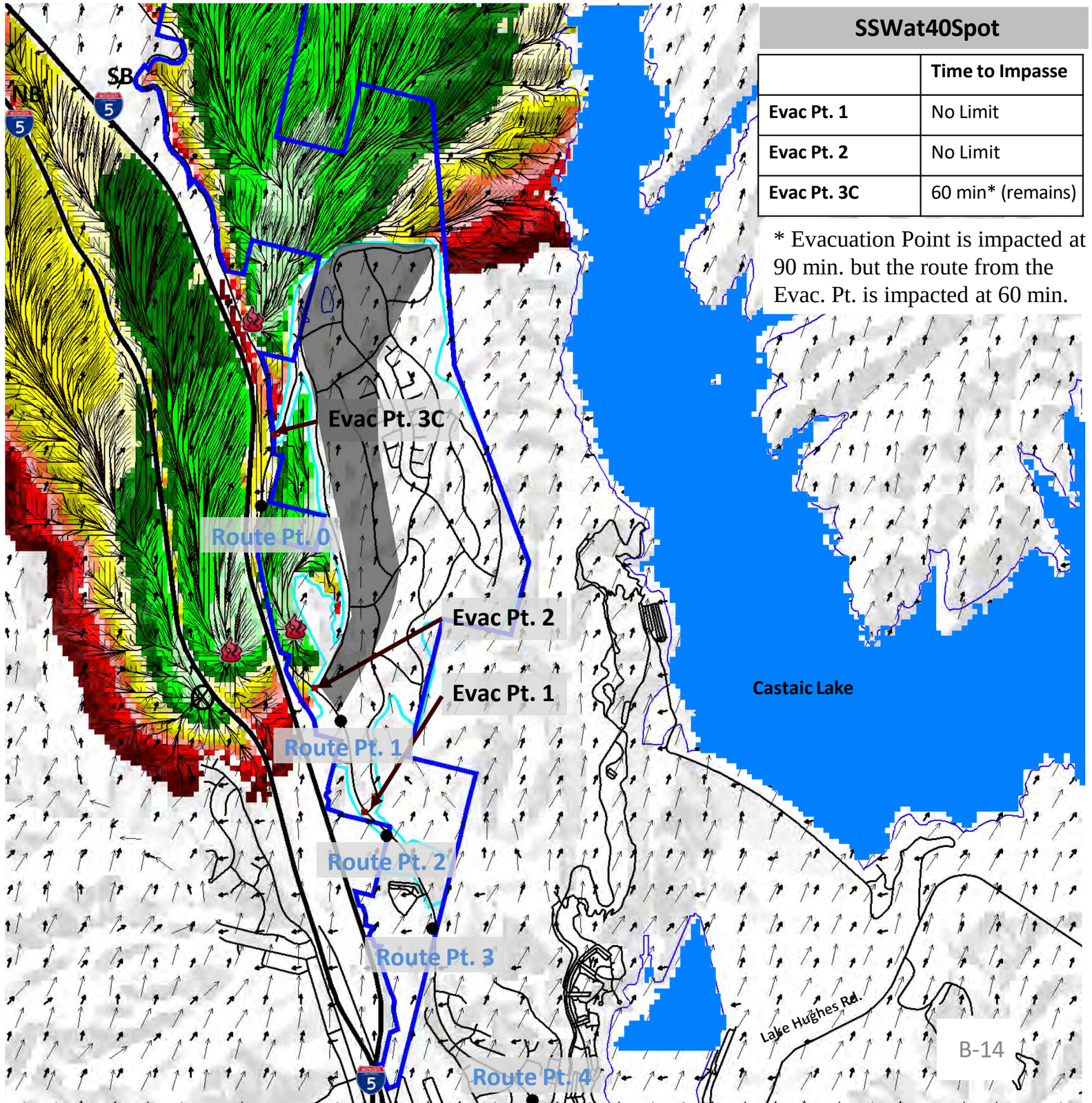
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.
First spot to second spot 30 min.
Third spot 60 min.

SSW wind at 40 Spot



SSWat40Spot

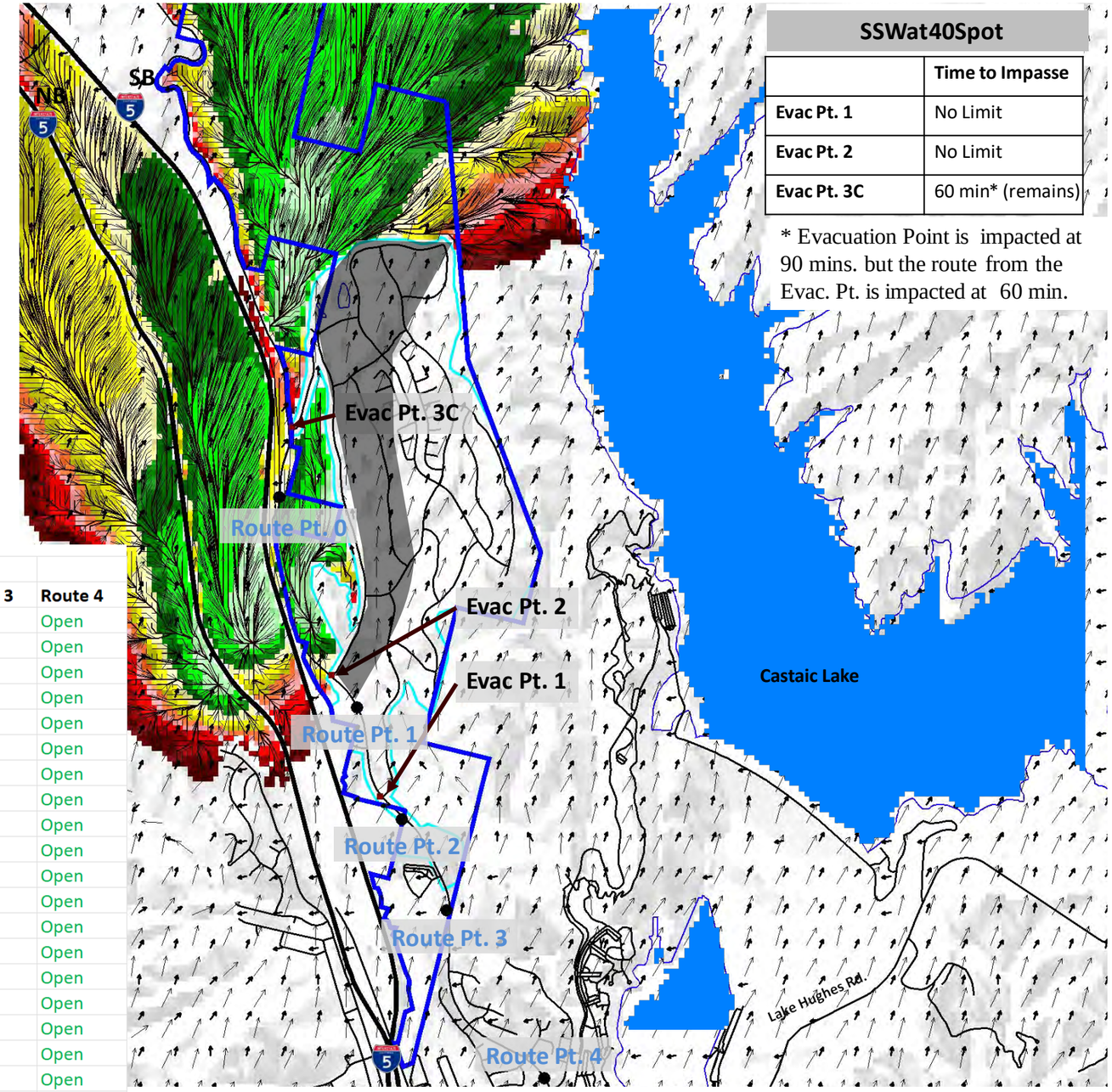
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	60 min* (remains)

* Evacuation Point is impacted at 90 min. but the route from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Partial Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.

SSW Spot at 40 mph Partial Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	**1:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
75	**1:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
90	**1:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
240	**4:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
255	**4:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
270	**4:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open



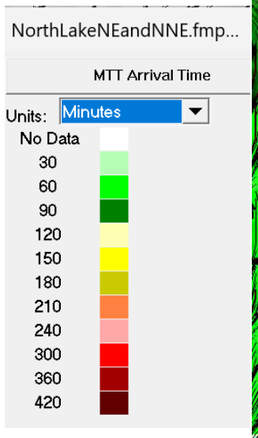
SSWat40Spot	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	60 min* (remains)

* Evacuation Point is impacted at 90 mins. but the route from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction) Line of Fire with Previously Approved Development

This fire with 40 mph winds (sustained) starts from an established line of fire to the SW.

The fire was made to spot over the freeways and start again.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

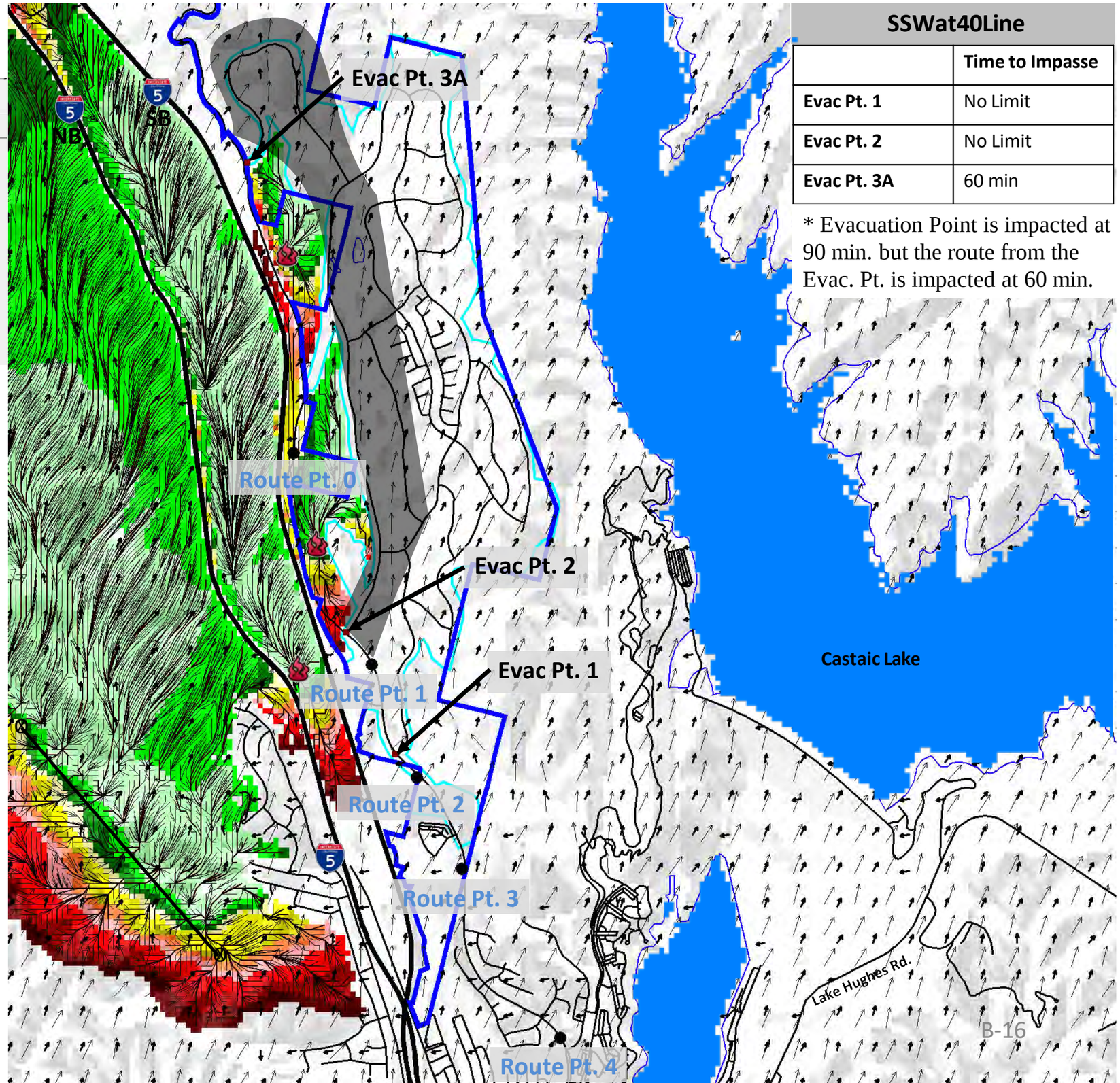
Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.
First spot to second spot 30 min.
Third spot 30 min.
SSW wind at 40 Line



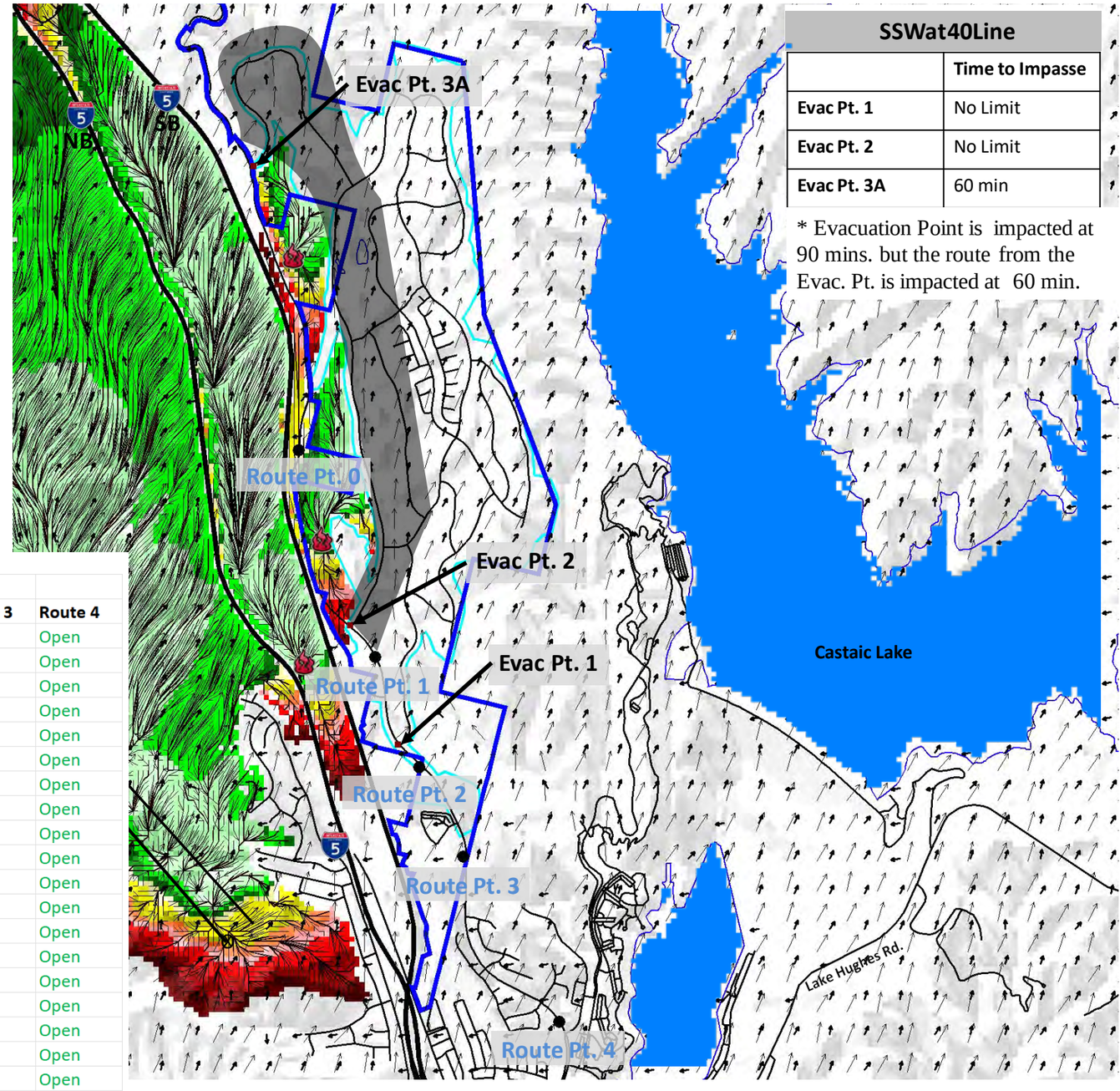
SSWat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3A	60 min

* Evacuation Point is impacted at 90 min. but the route from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction) Line of Fire with Previously Approved Development

Narrative: Fire as a line of fire west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.

SSW Line at 40 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open



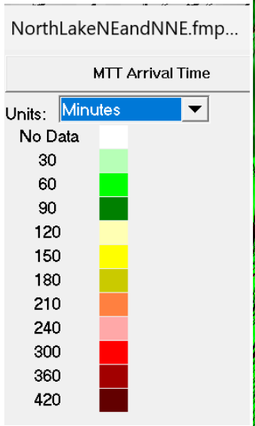
SSWat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3A	60 min

* Evacuation Point is impacted at 90 mins. but the route from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Line of Fire with Creek Avoidance Development

This fire with 40 mph winds (sustained) starts from an established line of fire to the SW.

The fire was made to spot over the freeways and start again.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

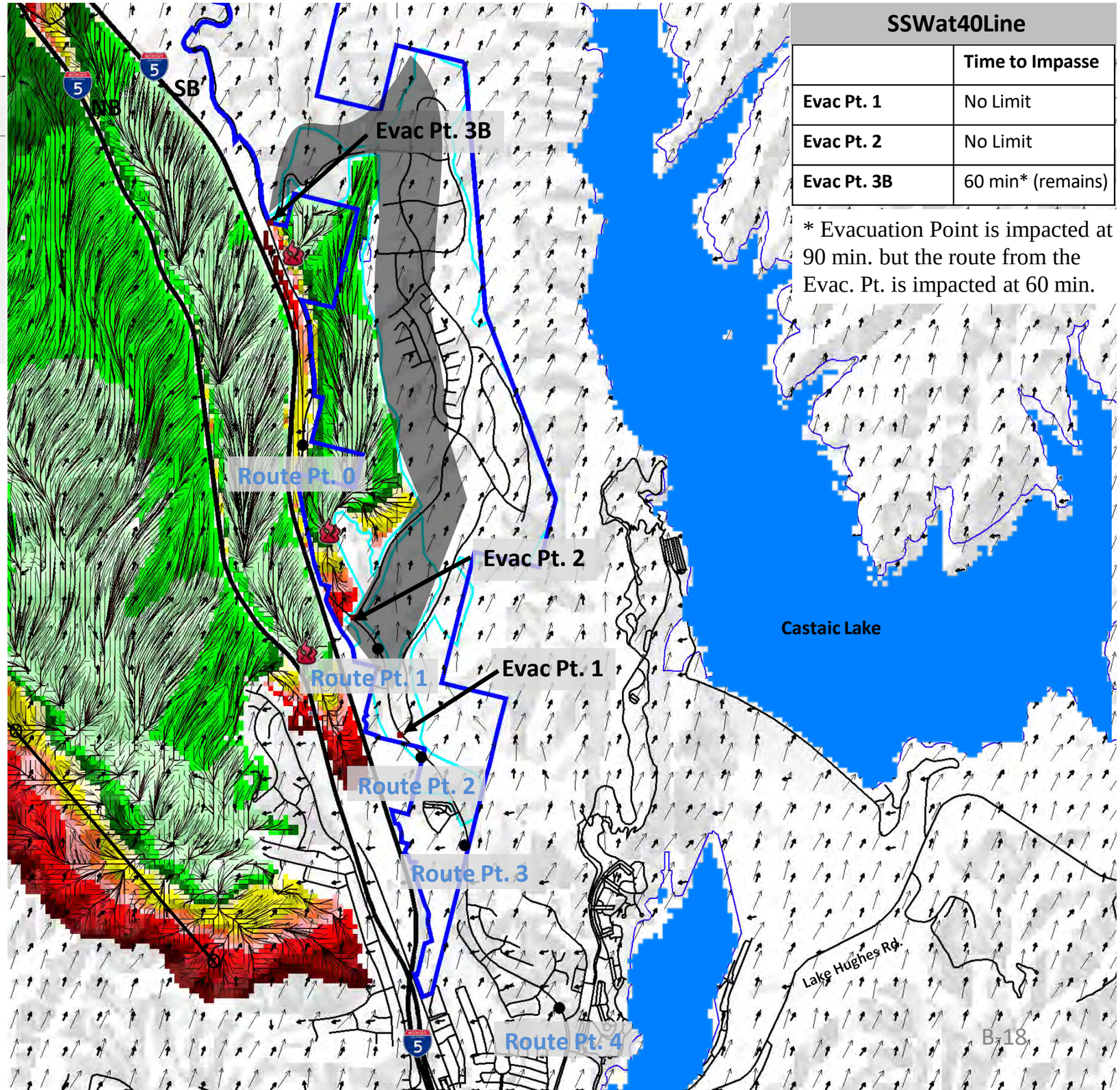
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.
First spot to second spot 30 min.
Third spot 30 min.

SSW wind at 40 Line



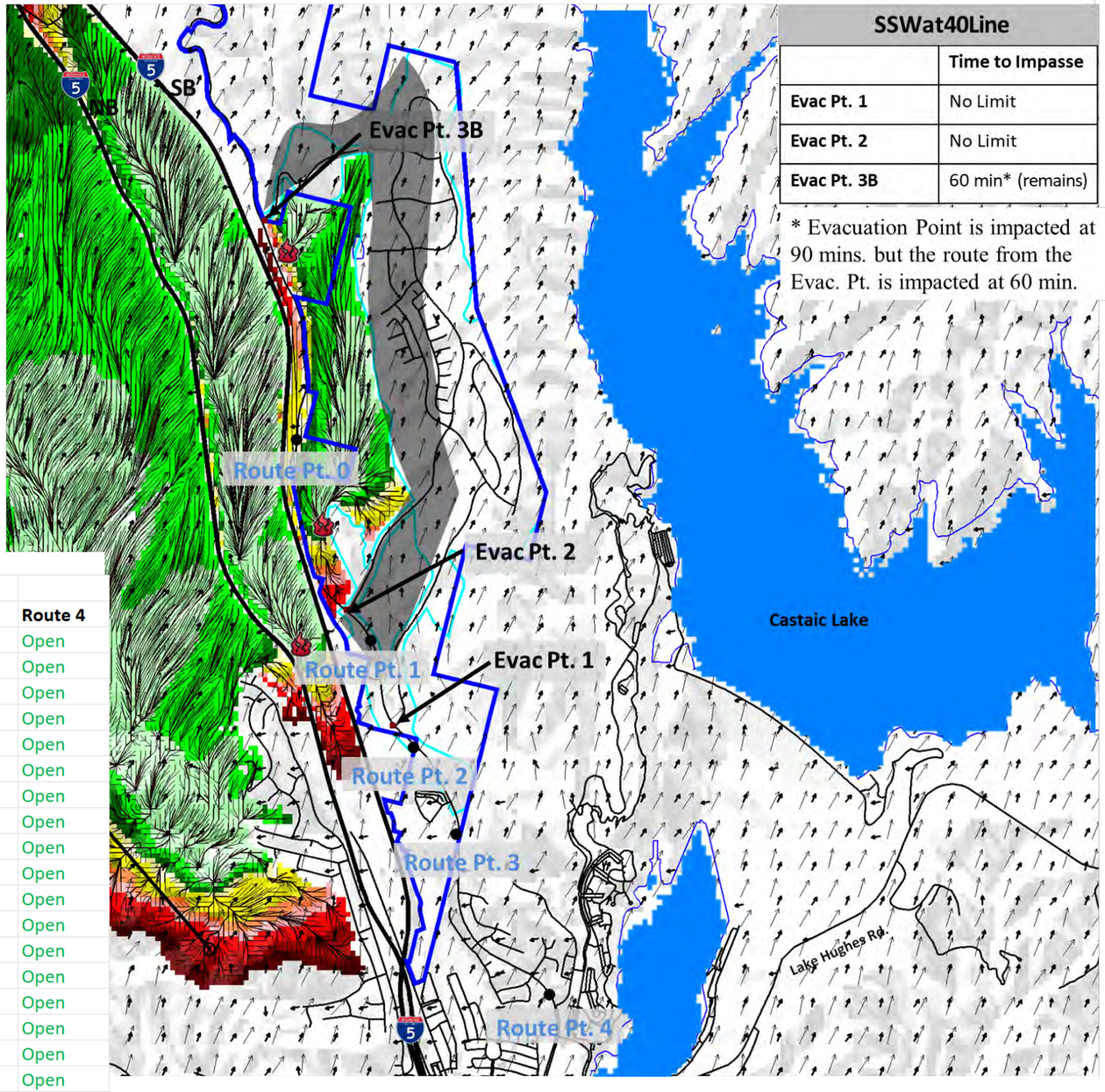
SSWat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3B	60 min* (remains)

* Evacuation Point is impacted at 90 min. but the route from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Line of Fire with Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.

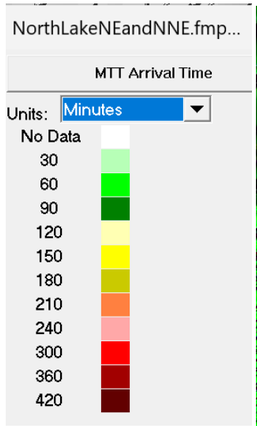
SSW LIne at 40 mph Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open



Increased Wind Speed (SSW direction)
Line of Fire with Partial Creek Avoidance Development

This fire with 40 mph winds (sustained) starts from an established line of fire to the SW.

The fire was made to spot over the freeways and start again.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.
First spot to second spot 30 min.
Third spot 30 min.

SSW wind at 40 Line

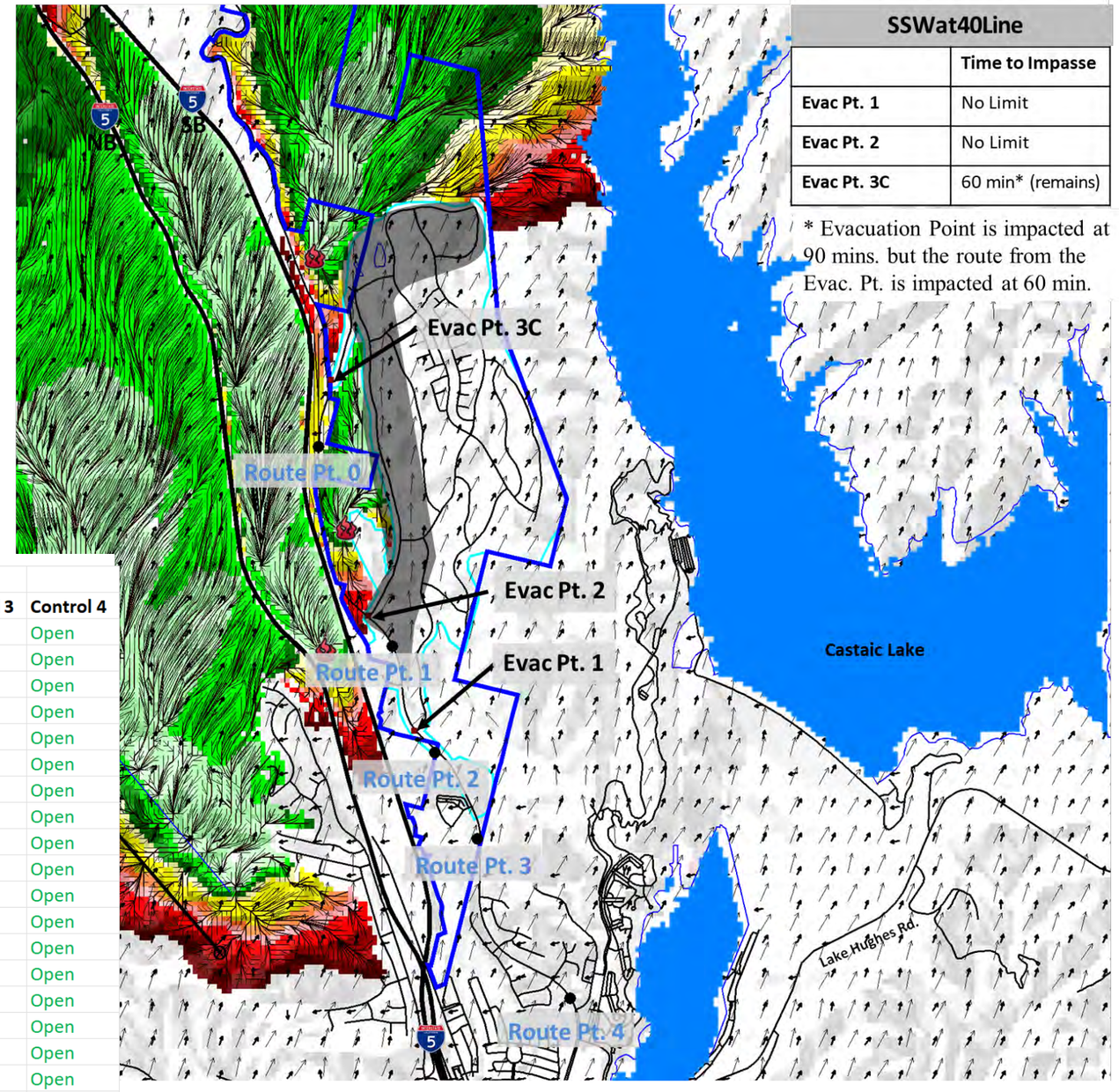
SSWat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	60 min* (remains)

* Evacuation Point is impacted at 90 min. but the route from the Evac. Pt. is impacted at 60 min.

Increased Wind Speed (SSW direction)
Line of Fire with Partial Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side and moves to the east at the top of the Project Site.

SSW Line at 40 mph Partial Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Control 0	Control 1	Control 2	Control 3	Control 4
15	**0:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	**1:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
75	**1:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
90	**1:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
240	**4:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
255	**4:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
270	**4:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open



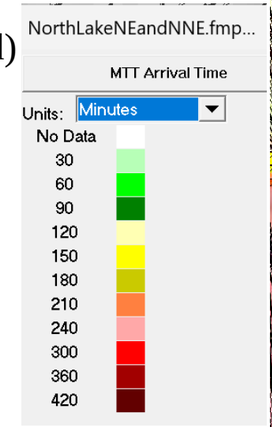
SSWat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	60 min* (remains)

* Evacuation Point is impacted at 90 mins. but the route from the Evac. Pt. is impacted at 60 min.

Wind Speed 40 mph (S direction) with Previously Approved Development

This fire with 40 mph winds (sustained) starts from a larger established line of fire to the South.

The fire was not made to spot over the freeways and start again as the wind direction will not take the fire in the direction of the development.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

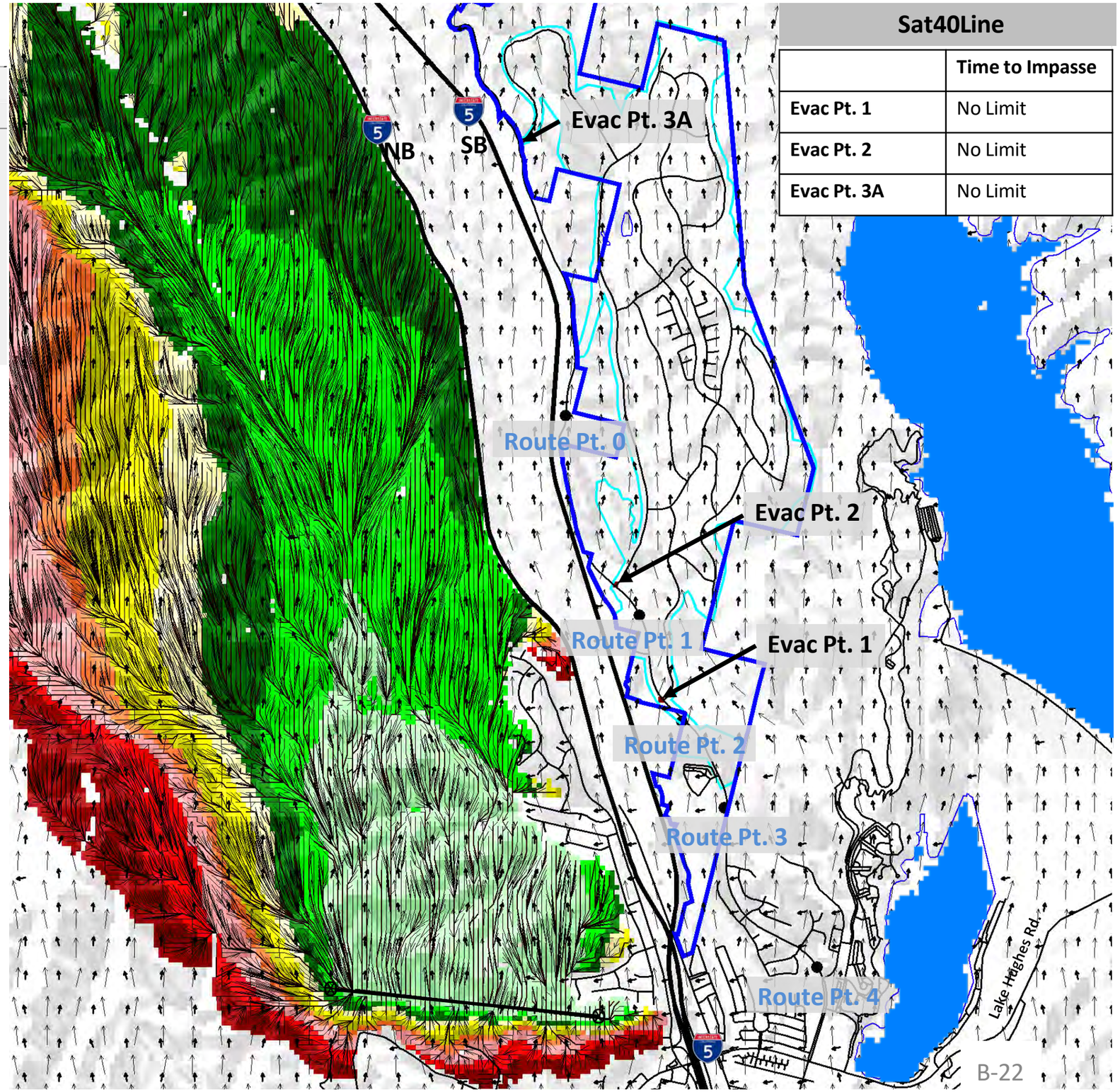
Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

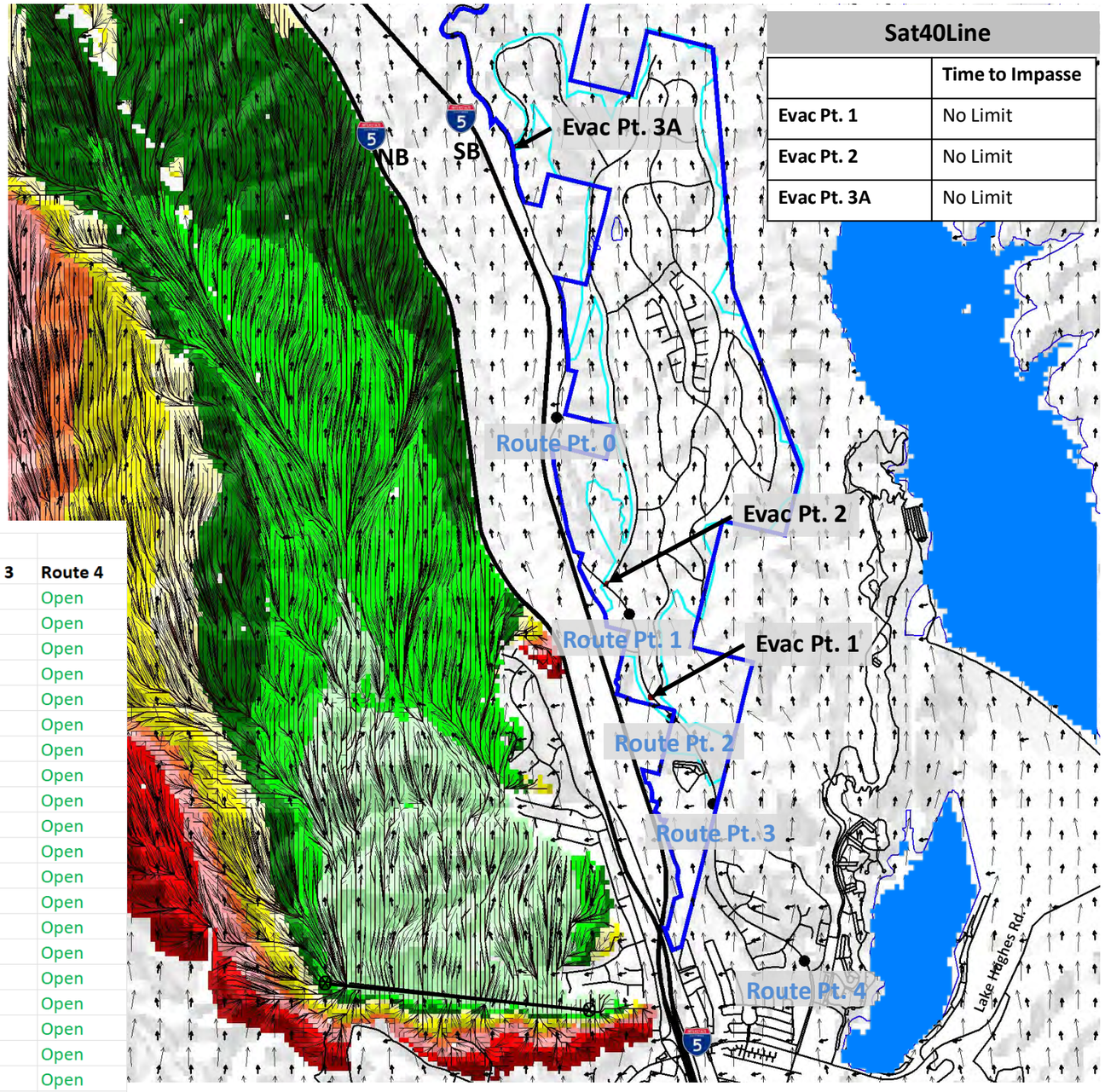
S wind at 40 Line



Sat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3A	No Limit

Wind Speed 40 mph (S direction) with Previously Approved Development

Narrative: Fire as a line of fire west of the northbound I-5 under a South Wind at 40 mph with the head fire moving to the north (branching to the west but holding at the freeway on the east). The wind direction and location of the fire does not have a high probability of spotting over the freeway in the vicinity of the Project Site. The program did not provide spots and they were not added manually.

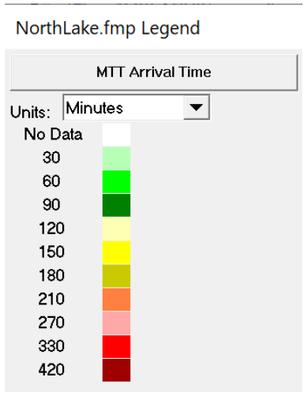


South LIne at 40 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	**1:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
75	**1:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
90	**1:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
105	**1:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
120	**2:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	**2:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	**2:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	**4:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
255	**4:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
270	**4:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	**5:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	**5:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

Wind Speed 40 mph (S direction) with Creek Avoidance Development

This fire with 40 mph winds (sustained) starts from a larger established line of fire to the South.

The fire was not made to spot over the freeways and start again as the wind direction will not take the fire in the direction of the development.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

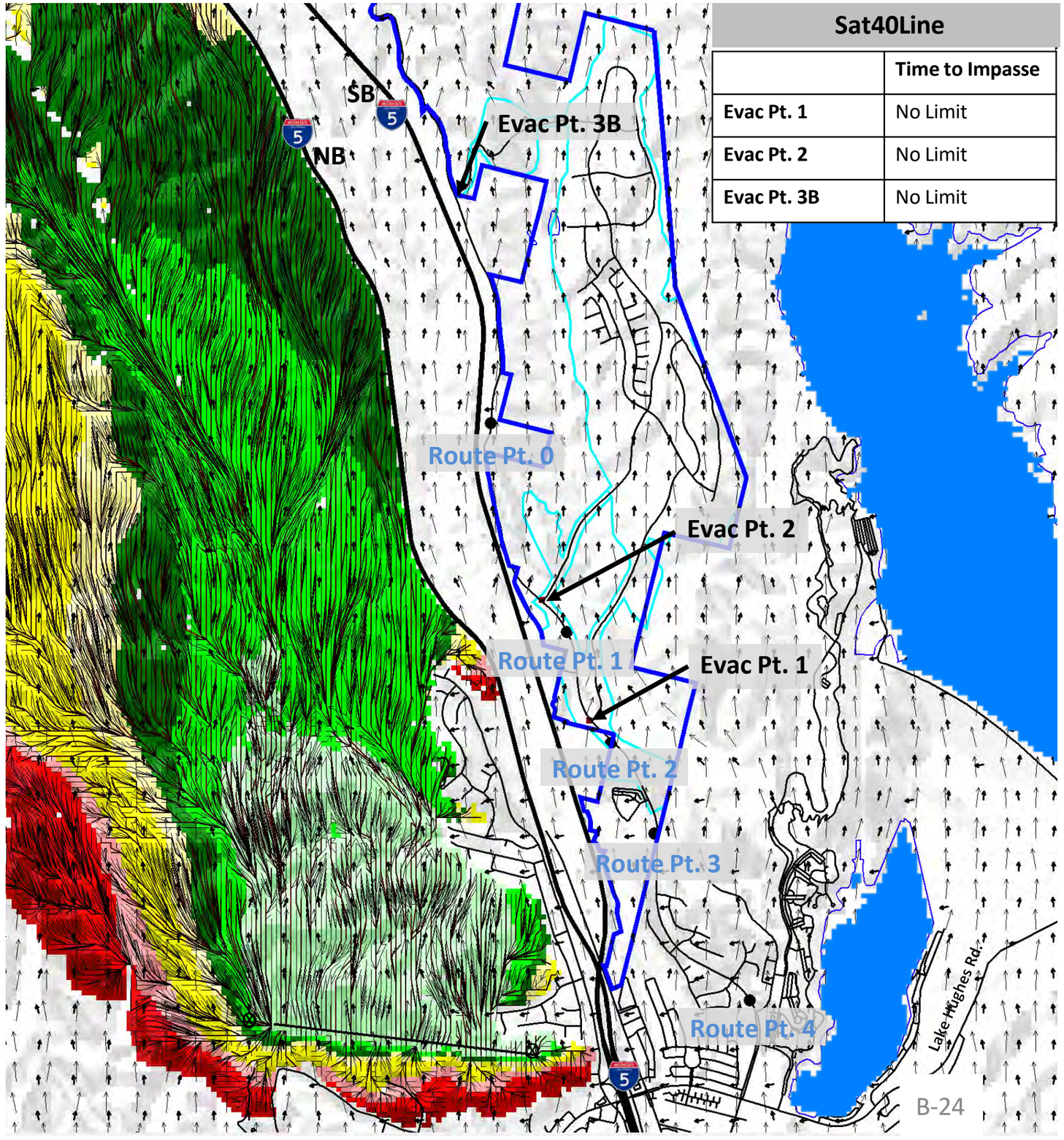
Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

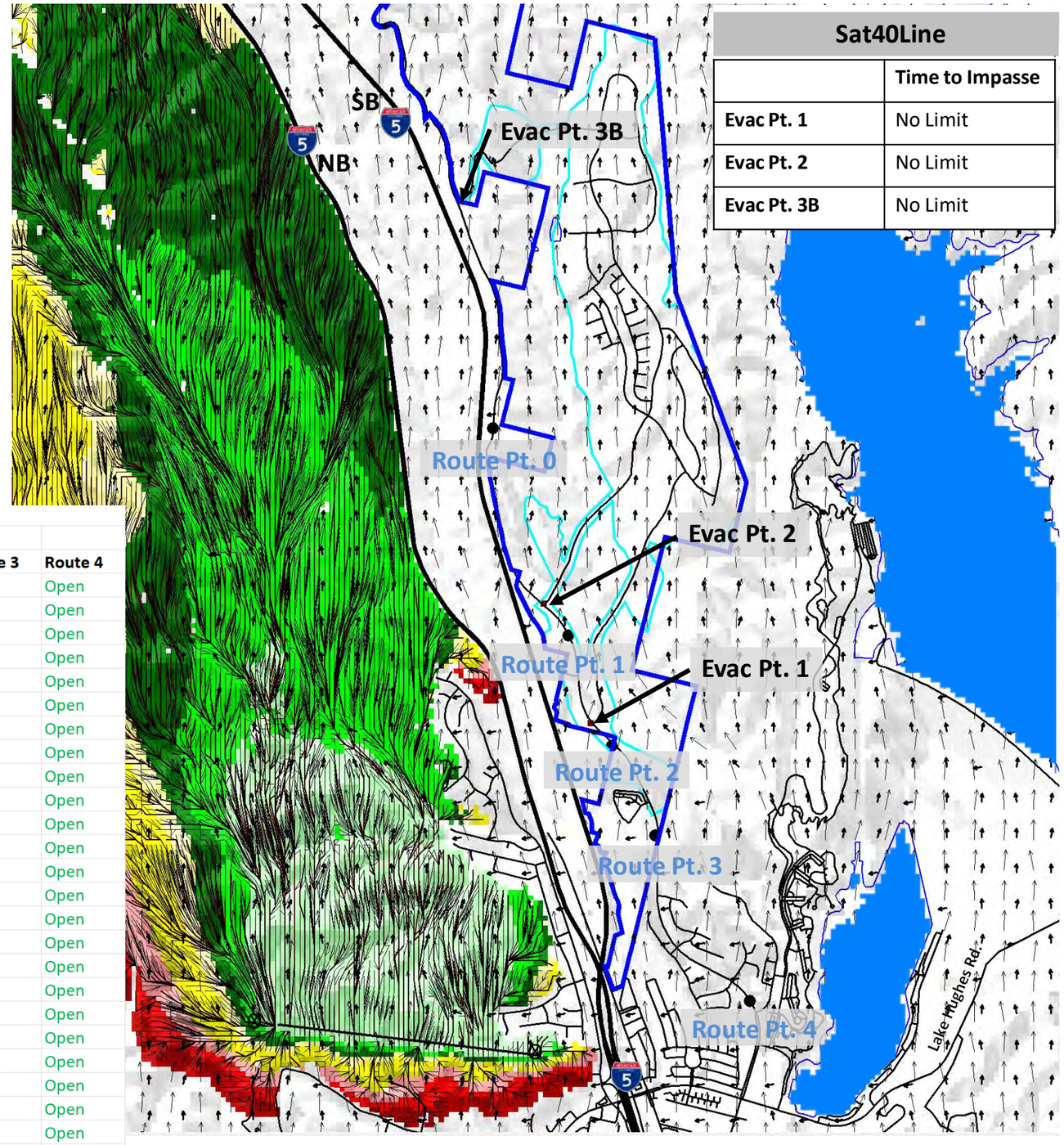
S wind at 40 Line



Sat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3B	No Limit

Wind Speed 40 mph (S direction) with Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a South Wind at 40 mph with the head fire moving to the north (branching to the west but holding at the freeway on the east). The wind direction and location of the fire does not have a high probability of spotting over the freeway in the vicinity of the Project Site. The program did not provide spots and they were not added manually.



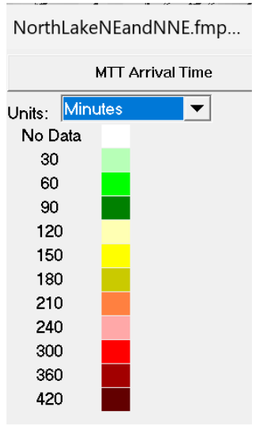
Sat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3B	No Limit

South LIne at 40 mph Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open

Wind Speed 40 mph (S direction) with Partial Creek Avoidance Development

This fire with 40 mph winds (sustained) starts from a larger established line of fire to the South.

The fire was not made to spot over the freeways and start again as the wind direction will not take the fire in the direction of the development.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

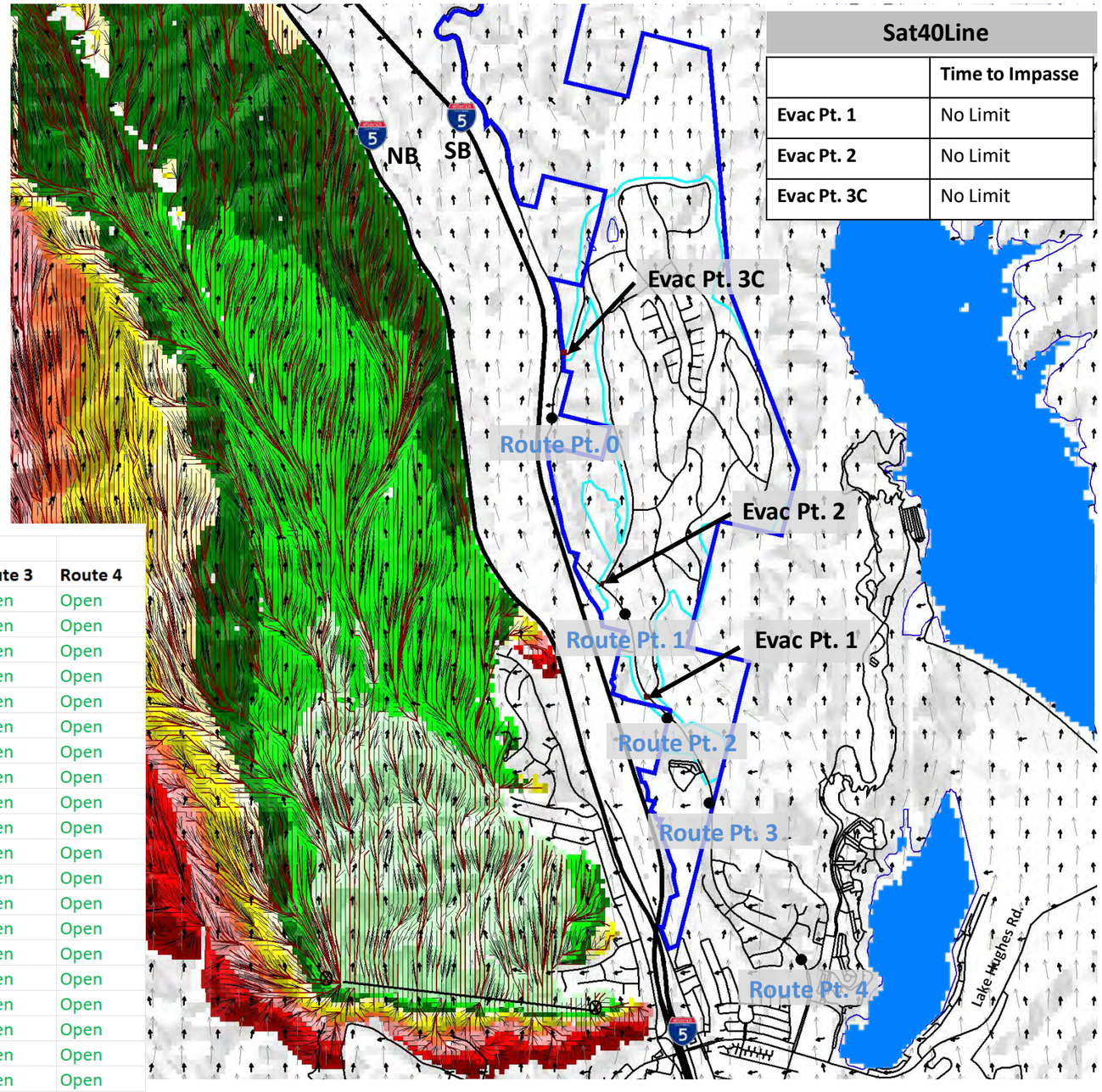
Spot Fire

S wind at 40 Line

Sat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	No Limit

Wind Speed 40 mph (S direction) with Partial Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a South Wind at 40 mph with the head fire moving to the north (branching to the west but holding at the freeway on the east). The wind direction and location of the fire does not have a high probability of spotting over the freeway in the vicinity of the Project Site. The program did not provide spots and they were not added manually.



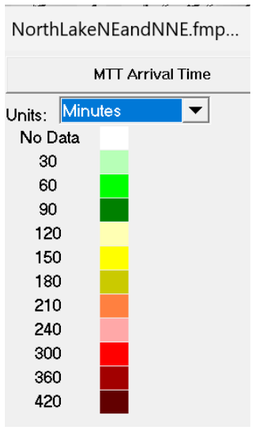
Sat40Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	No Limit

South Line at 40 mph Partial Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Previously Approved Development

This fire with 40 mph winds (sustained) starts spot fires along side the I-5 NB at the side of the road.

The fire was made to spot to the north where wildland fuels are present within the ember cast.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

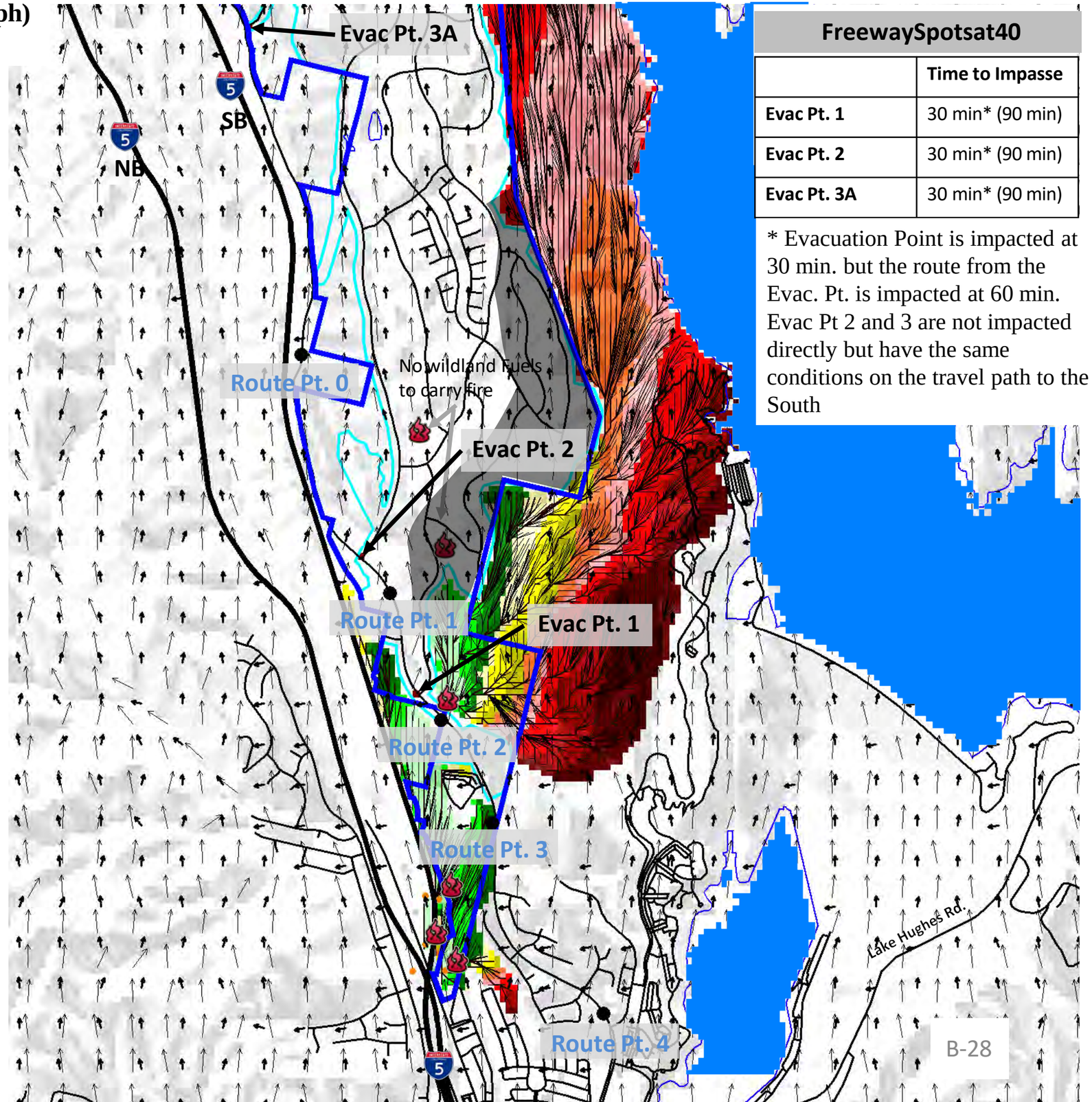
Spread Direction

Fire Flow Path

Origins of the Fire (spots)

Origin(first three spots)
Fourth spot 30 additional min.
Fifth spot 30 additional min.
Sixth spot 30 more

S wind at 40 Spots



FreewaySpotsat40

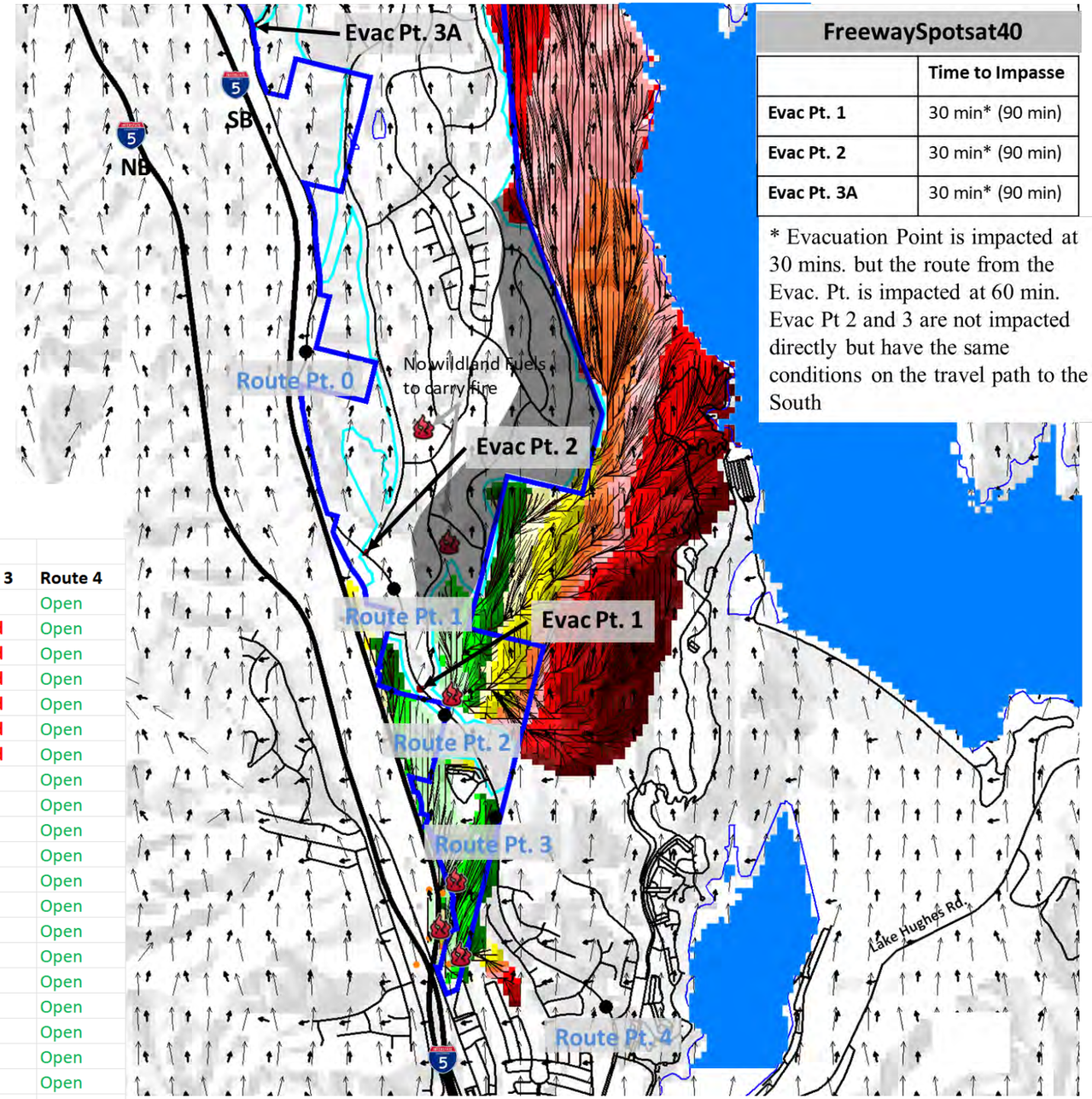
	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (90 min)
Evac Pt. 3A	30 min* (90 min)

* Evacuation Point is impacted at 30 min. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Previously Approved Development

Narrative: Fire begins as a series of spot fires on the SB I-5 north of the NB/SB crossover. The fires is driven by a South wind at 40 mph. The fire was made to spot over Ridge Route in 30 min. It was made to spot again in another 30 min (60 min. elapsed time) to the north and a final time in another 30 min. (90 min. elapsed time). No flame propagation within the development area occurs. Ridge Route will be impacted for approximately 90 minutes for all Evac Points beginning 30 min into the scenario. Once the fire has passed this impact points, all Evac Points will reopen and remain open.

Freeway Spot at 40 mph Approved		Evacuation to the South									
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
45	0:45	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
60	1:00	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
75	1:15	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
90	1:30	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
105	1:45	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open



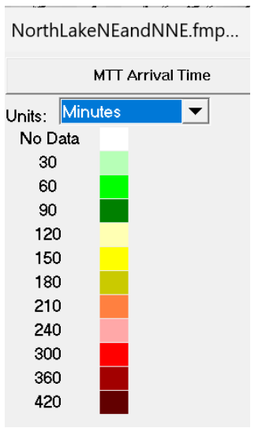
FreewaySpotsat40	
	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (90 min)
Evac Pt. 3A	30 min* (90 min)

* Evacuation Point is impacted at 30 mins. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Creek Avoidance Development

This fire with 40 mph winds (sustained) starts spot fires along side the I-5 NB at the side of the road.

The fire was made to spot to the north where wildland fuels are present within the ember cast.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

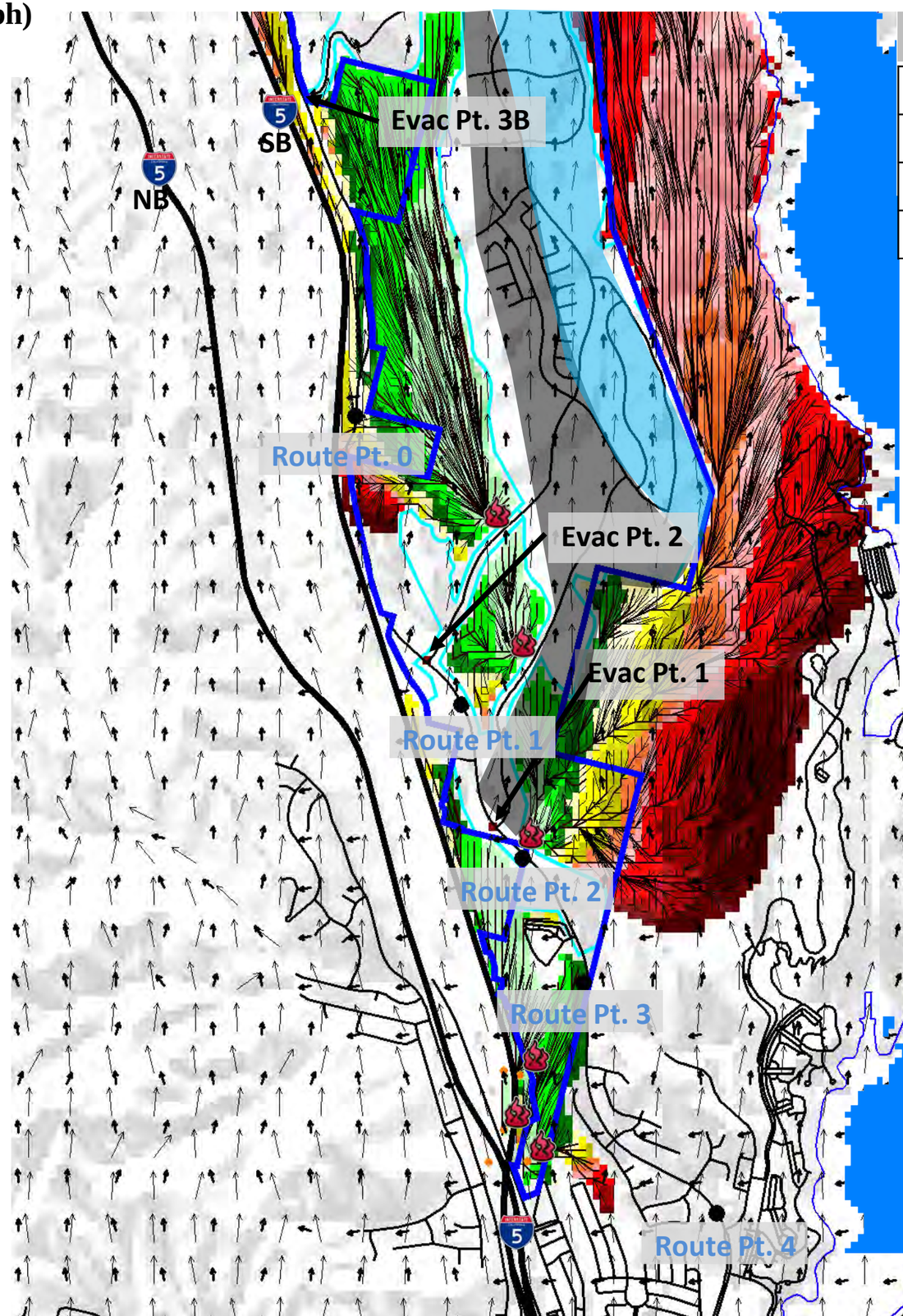
Spread Direction

Fire Flow Path

Origins of the Fire (spots)

Origin(first three spots)
Fourth spot 30 additional min.
Fifth spot 30 additional min.
Sixth spot 30 more

S wind at 40 Spots



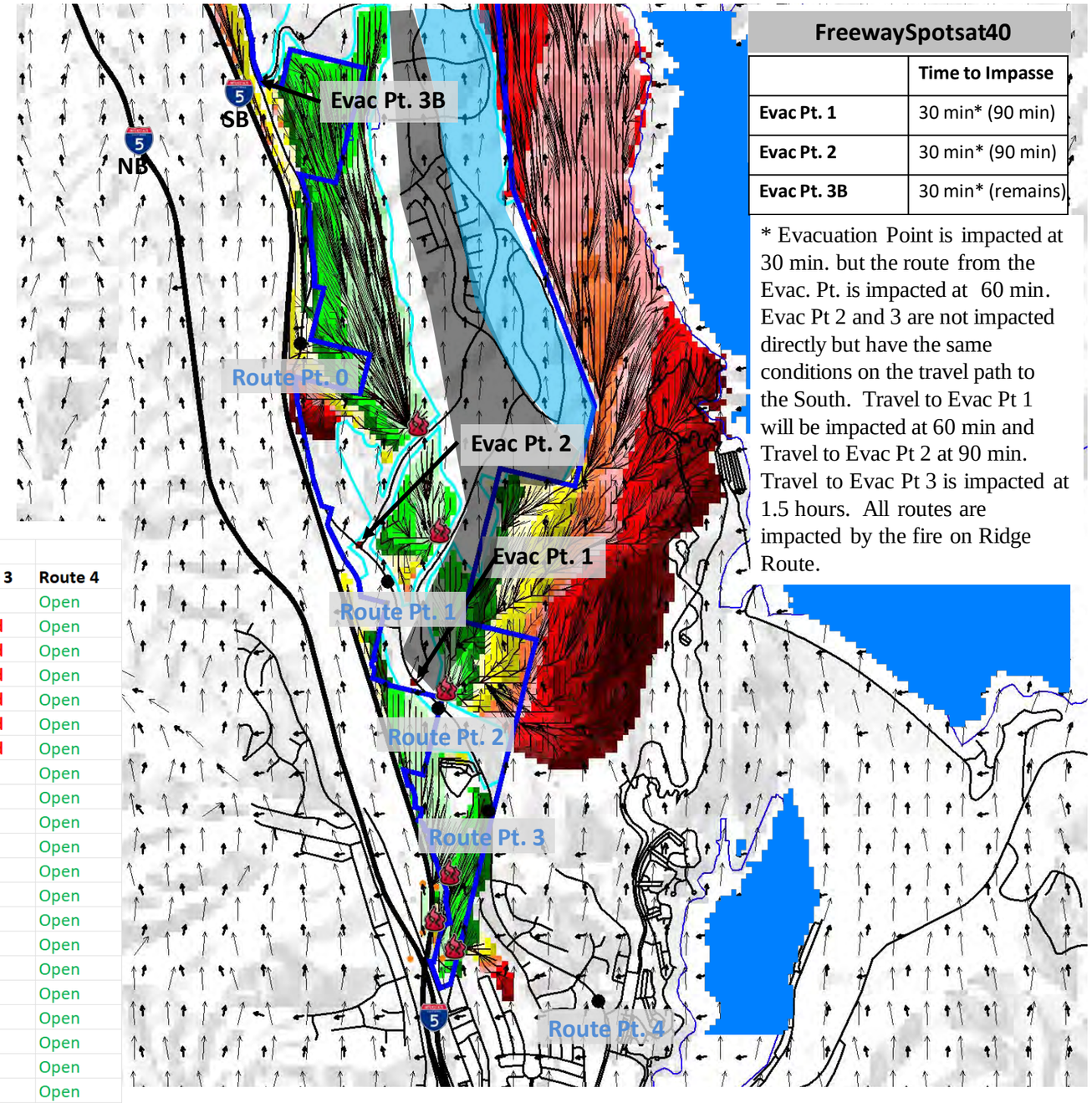
FreewaySpotsat40	
	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (90 min)
Evac Pt. 3B	30 min* (remains)

* Evacuation Point is impacted at 30 min. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South. Travel to Evac Pt 1 will be impacted at 60 min and Travel to Evac Pt 2 at 90 min. Travel to Evac Pt 3 is impacted at 1.5 hours. All routes are impacted by the fire on Ridge Route.

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Creek Avoidance Development

Narrative: Fire begins as a series of spot fires on the SB I-5 north of the NB/SB crossover. The fires is driven by a South wind at 40 mph. The fire was made to spot over Ridge Route in 30 min. It was made to spot again in another 30 min (60 min. elapsed time) to the north and a final time in another 30 min. (90 min. elapsed time). Ridge Route will be impacted for approximately 90 minutes for all Evac Points beginning 30 min into the scenario. Once the fire has passed this impact points, all Evac Points will reopen and remain open.

Freeway Spot at 40 mph Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
45	0:45	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
60	1:00	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
75	1:15	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
90	1:30	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
105	1:45	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
120	2:00	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open



FreewaySpotsat40	
	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (90 min)
Evac Pt. 3B	30 min* (remains)

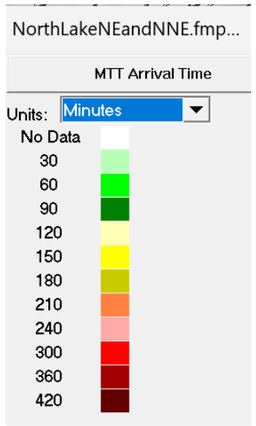
* Evacuation Point is impacted at 30 min. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South. Travel to Evac Pt 1 will be impacted at 60 min and Travel to Evac Pt 2 at 90 min. Travel to Evac Pt 3 is impacted at 1.5 hours. All routes are impacted by the fire on Ridge Route.

An early shelter in place order is likely with evacuation after the fire front has cleared Evac Pt. 1 and Route Pts 2 and 3.

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Partial Creek Avoidance Development

This fire with 40 mph winds (sustained) starts spot fires along side the I-5 NB at the side of the road.

The fire was made to spot to the north where wildland fuels are present within the ember cast.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

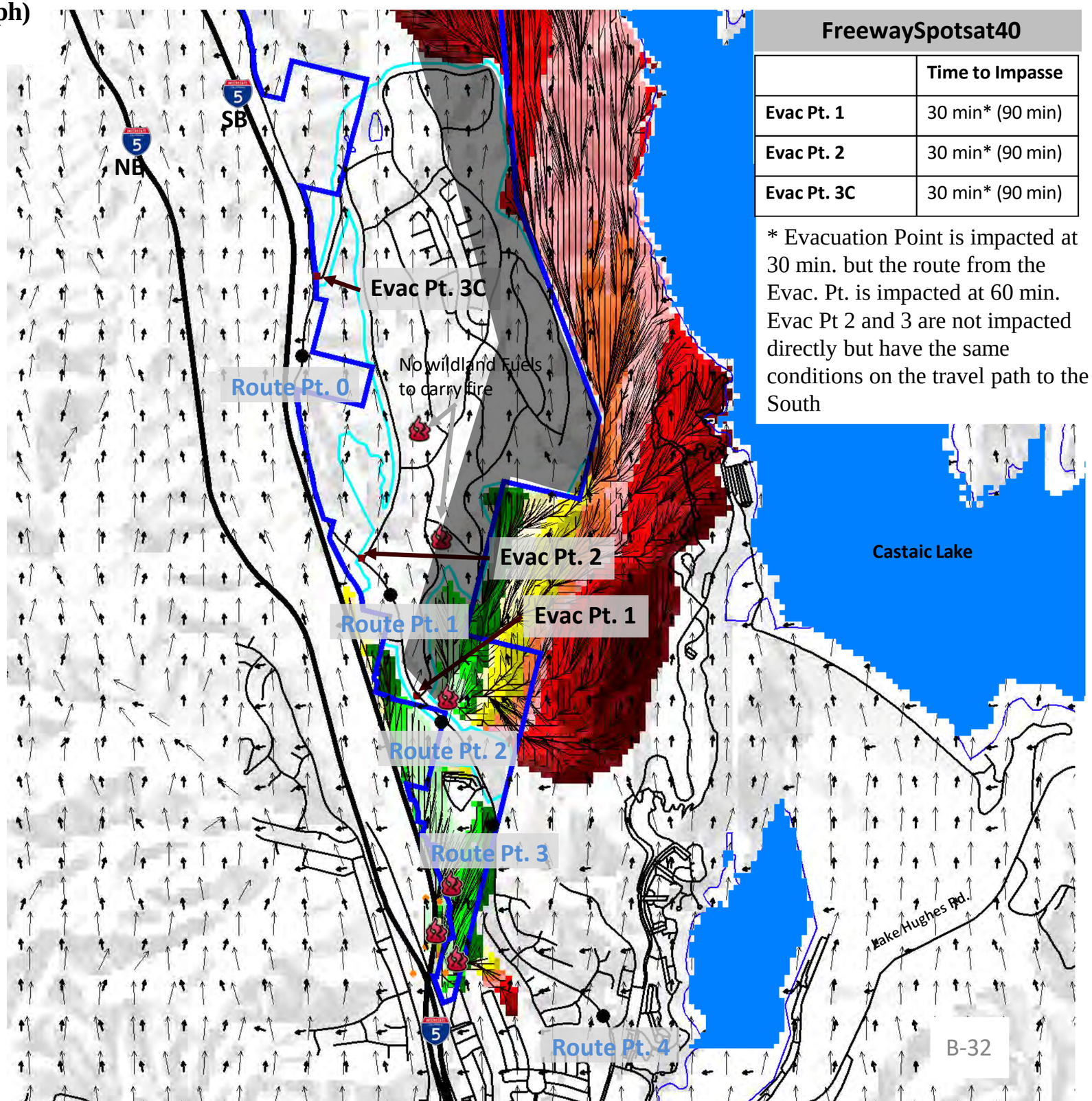
Spread Direction

Fire Flow Path

Origins of the Fire (spots)

Origin(first three spots)
Fourth spot 30 additional min.
Fifth spot 30 additional min.
Sixth spot 30 more

S wind at 40 Spots



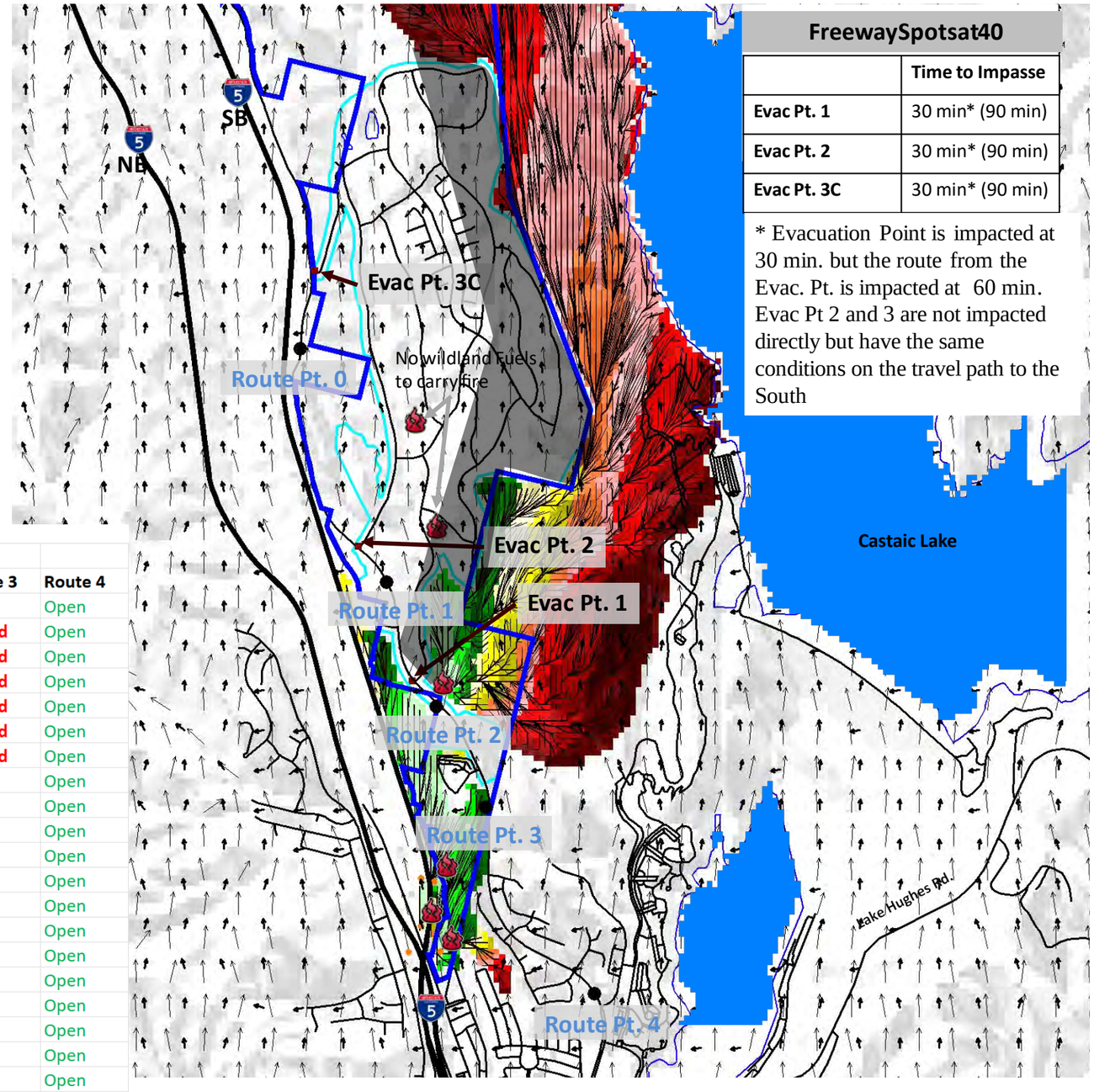
FreewaySpotsat40	
	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (90 min)
Evac Pt. 3C	30 min* (90 min)

* Evacuation Point is impacted at 30 min. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Partial Creek Avoidance Development

Narrative: Fire begins as a series of spot fires on the SB I-5 north of the NB/SB crossover. The fires is driven by a South wind at 40 mph. The fire was made to spot over Ridge Route in 30 min. It was made to spot again in another 30 min (60 min. elapsed time) to the north and a final time in another 30 min. (90 min. elapsed time). No flame propagation within the development area occurs. Ridge Route will be impacted for approximately 90 minutes for all Evac Points beginning 30 min into the scenario. Once the fire has passed this impact points, all Evac Points will reopen and remain open.

Freeway Spot at 40 mph Partial Avoid				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	**0:30**	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
45	**0:45**	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
60	**1:00**	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
75	**1:15**	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
90	**1:30**	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
105	**1:45**	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
120	**2:00**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
240	**4:00**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
255	**4:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
270	**4:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open



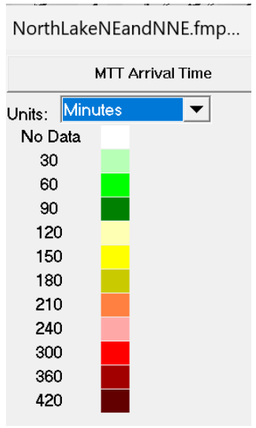
FreewaySpotsat40	
	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (90 min)
Evac Pt. 3C	30 min* (90 min)

* Evacuation Point is impacted at 30 min. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Previously Approved Development

This fire with 40 mph winds (sustained) starts from single source within the County Recreation Area.

The fire progress is rapid in the areas of alignment (wind, fuel, topography).



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

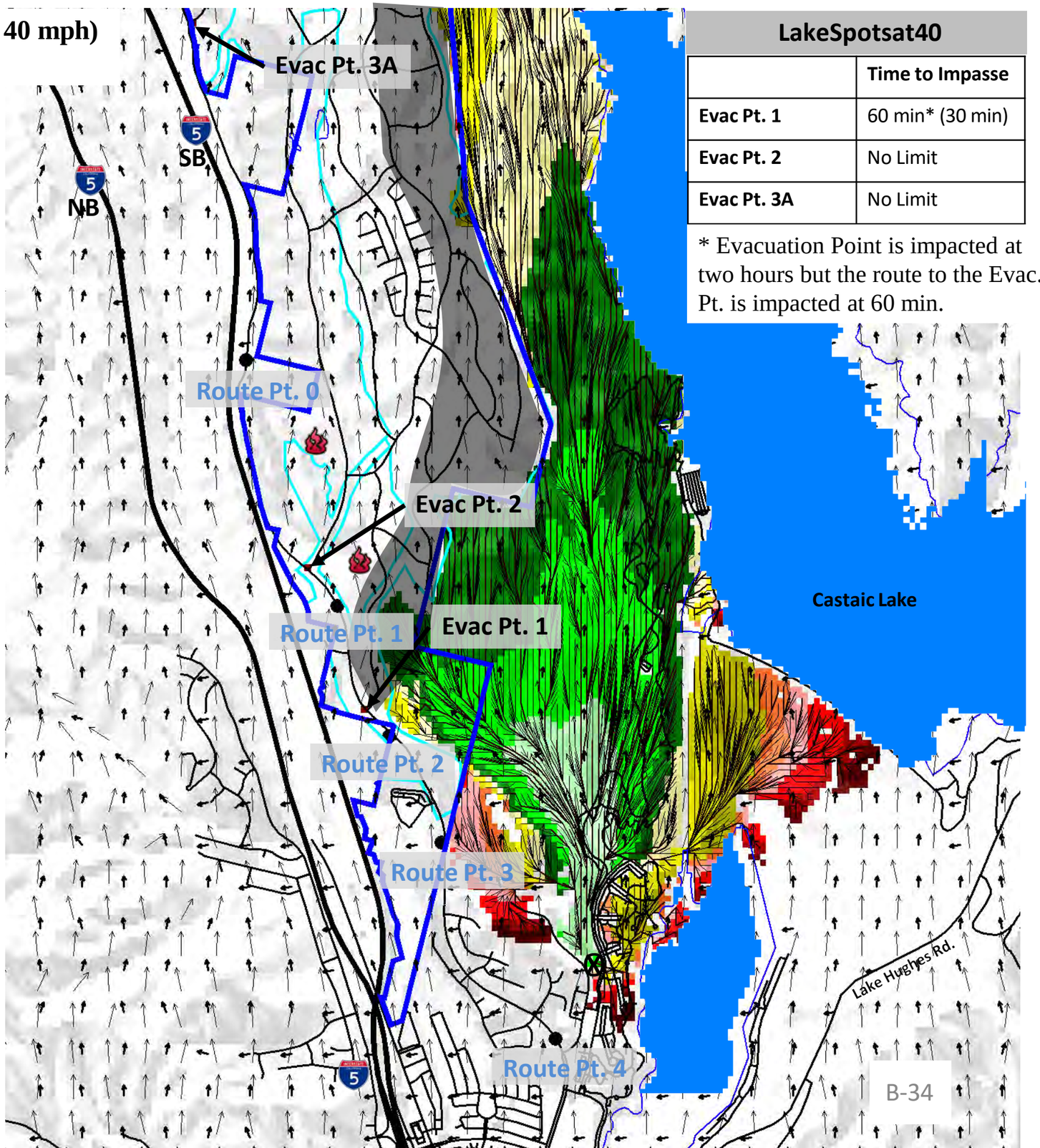
Fire Flow Path

Origins of the Fire

Spot Fire

Origin to first spot 90 min.
First spot to second spot 30 min.

S wind at 40 Spots

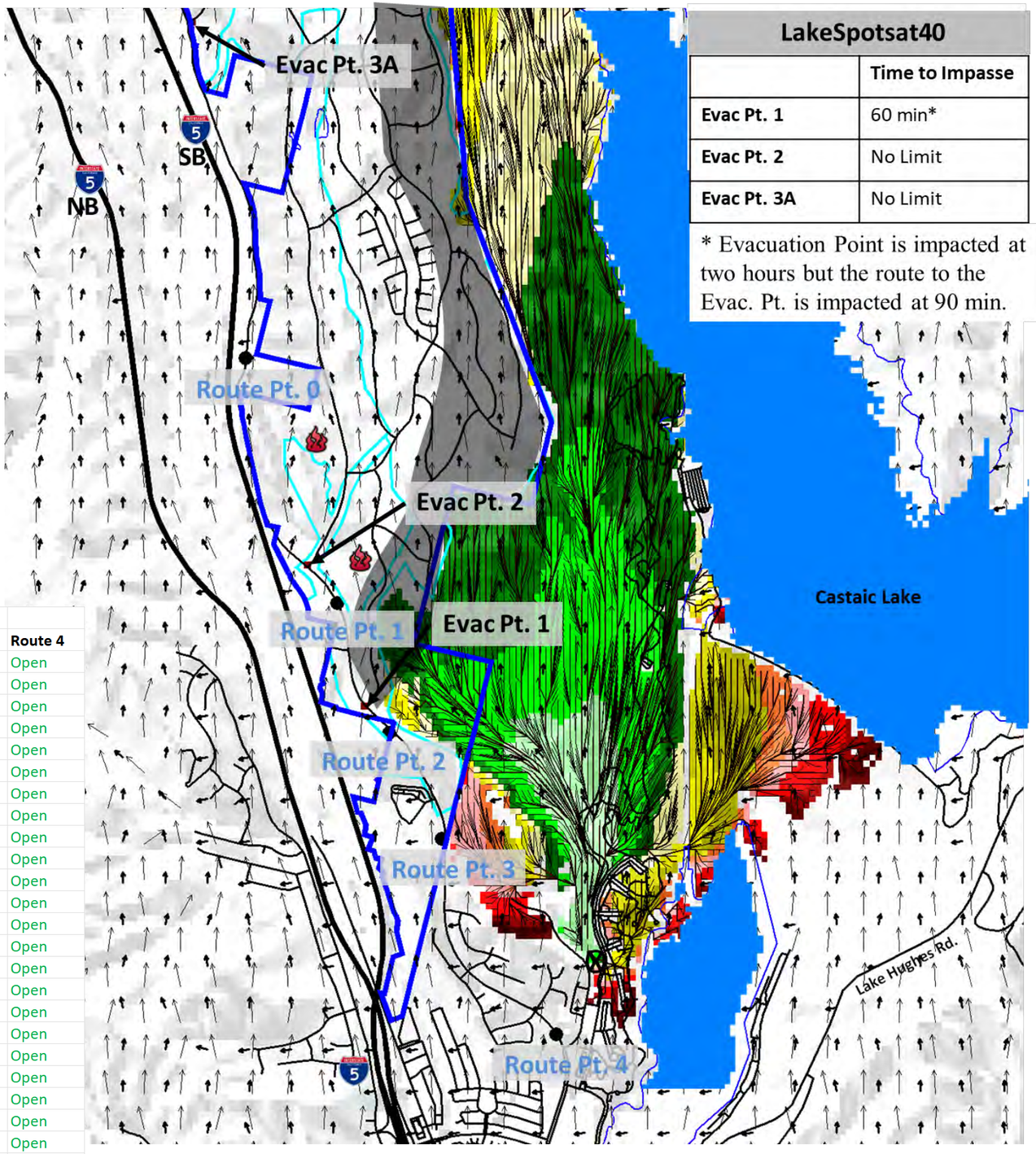


LakeSpotsat40	
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	No Limit
Evac Pt. 3A	No Limit

* Evacuation Point is impacted at two hours but the route to the Evac. Pt. is impacted at 60 min.

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Previously Approved Development

Narrative: Fire begins as spot fires in the Recreation Area under a South Wind at 40 mph with the head fire moving to the north (branching to the east and west). Fire does not spot over roadways on the west side due to development. Fire continues to burn to the north on the east side of the Project Site.



LakeSpotsat40	
	Time to Impasse
Evac Pt. 1	60 min*
Evac Pt. 2	No Limit
Evac Pt. 3A	No Limit

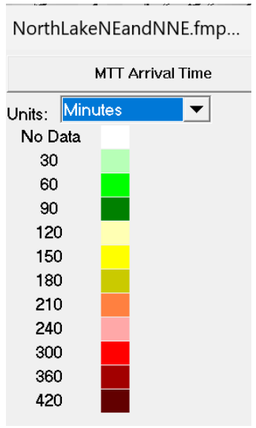
* Evacuation Point is impacted at two hours but the route to the Evac. Pt. is impacted at 90 min.

Lake Spots at 40 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Closed	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Closed	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Creek Avoidance Development

This fire with 40 mph winds (sustained) starts from single source within the County Recreation Area.

The fire progress is rapid in the areas of alignment (wind, fuel, topography).



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

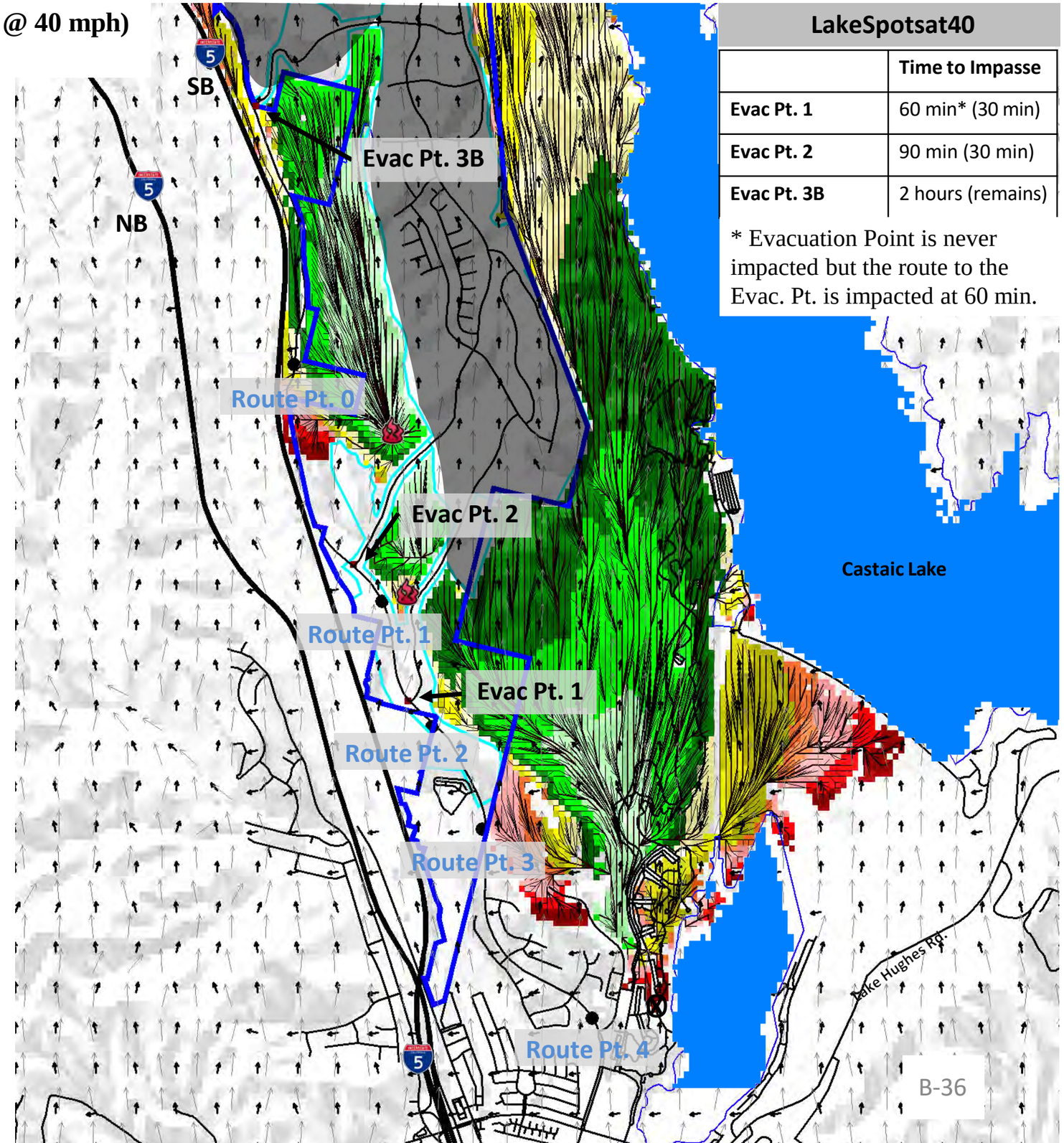
Fire Flow Path

Origins of the Fire

Spot Fire

Origin to first spot 60 min.
First spot to second spot 30 min.

S wind at 40 Spots

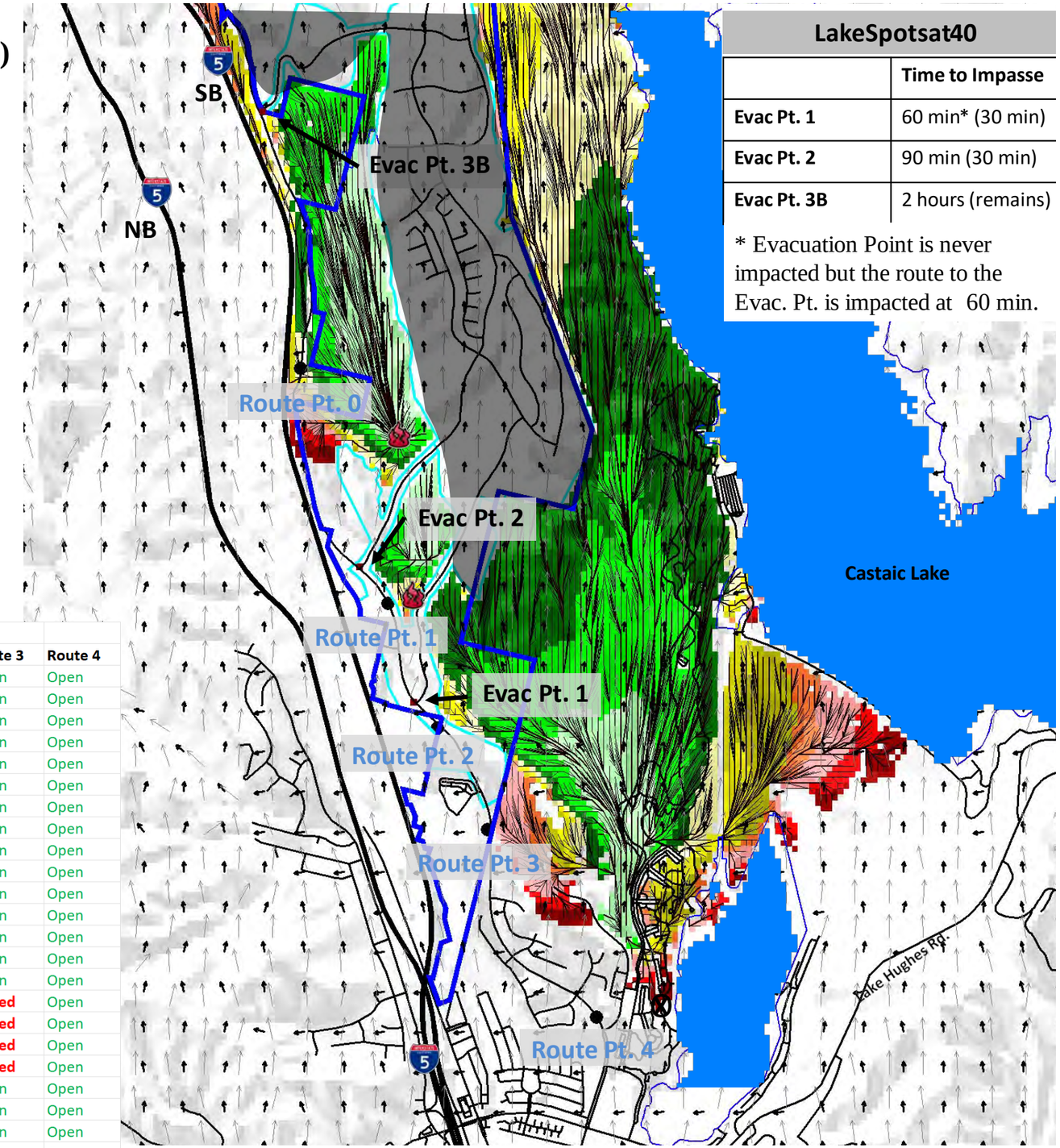


LakeSpotsat40	
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	90 min (30 min)
Evac Pt. 3B	2 hours (remains)

* Evacuation Point is never impacted but the route to the Evac. Pt. is impacted at 60 min.

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Creek Avoidance Development

Narrative: Fire begins as spot fires in the Recreation Area under a South Wind at 40 mph with the head fire moving to the north (branching to the east and west). At 60 min (elapsed time) fire spots over the access road to Evac Point 1, closing the access for 30 minutes. The fire on the west continues to burn north and spots over the access to Evac Point 2 at 90 min (elapsed time) and continues to burn to the north on both sides of the Project Site.



LakeSpotsat40	
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	90 min (30 min)
Evac Pt. 3B	2 hours (remains)

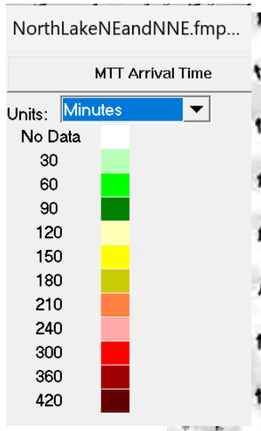
* Evacuation Point is never impacted but the route to the Evac. Pt. is impacted at 60 min.

Lake Spots at 40 mph Creek Avoidance				Evacuation to the South							
		Evac Pt 1	**Evac Pt 2**	**Evac Pt. 3A**	**Evac Pt. 3B**	**Evac Pt. 3C**	**Route 0**	**Route 1**	**Route 2**	**Route 3**	**Route 4**
15	**0:15**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	**1:00**	**Closed**	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
75	**1:15**	**Closed**	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
90	**1:30**	Open	**Closed**	n/a	Open	n/a	Open	Open	Open	Open	Open
105	**1:45**	Open	**Closed**	n/a	Open	n/a	Open	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
240	**4:00**	Open	Open	n/a	**Closed**	n/a	**Closed**	**Closed**	**Closed**	**Closed**	Open
255	**4:15**	Open	Open	n/a	**Closed**	n/a	**Closed**	**Closed**	**Closed**	**Closed**	Open
270	**4:30**	Open	Open	n/a	**Closed**	n/a	**Closed**	**Closed**	**Closed**	**Closed**	Open
285	**4:45**	Open	Open	n/a	**Closed**	n/a	**Closed**	**Closed**	**Closed**	**Closed**	Open
300	**5:00**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	**Closed**	n/a	**Closed**	Open	Open	Open	Open

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Partial Creek Avoidance Development

This fire with 40 mph winds (sustained) starts from single source within the County Recreation Area.

The fire progress is rapid in the areas of alignment (wind, fuel, topography).



LakeSpotsat40	
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	No Limit
Evac Pt. 3C	No Limit

* Evacuation Point is impacted at two hours but the route to the Evac. Pt. is impacted at 60 min.

Streets
Project Boundary
Freeway
Development Area
Route Fire Perimeter

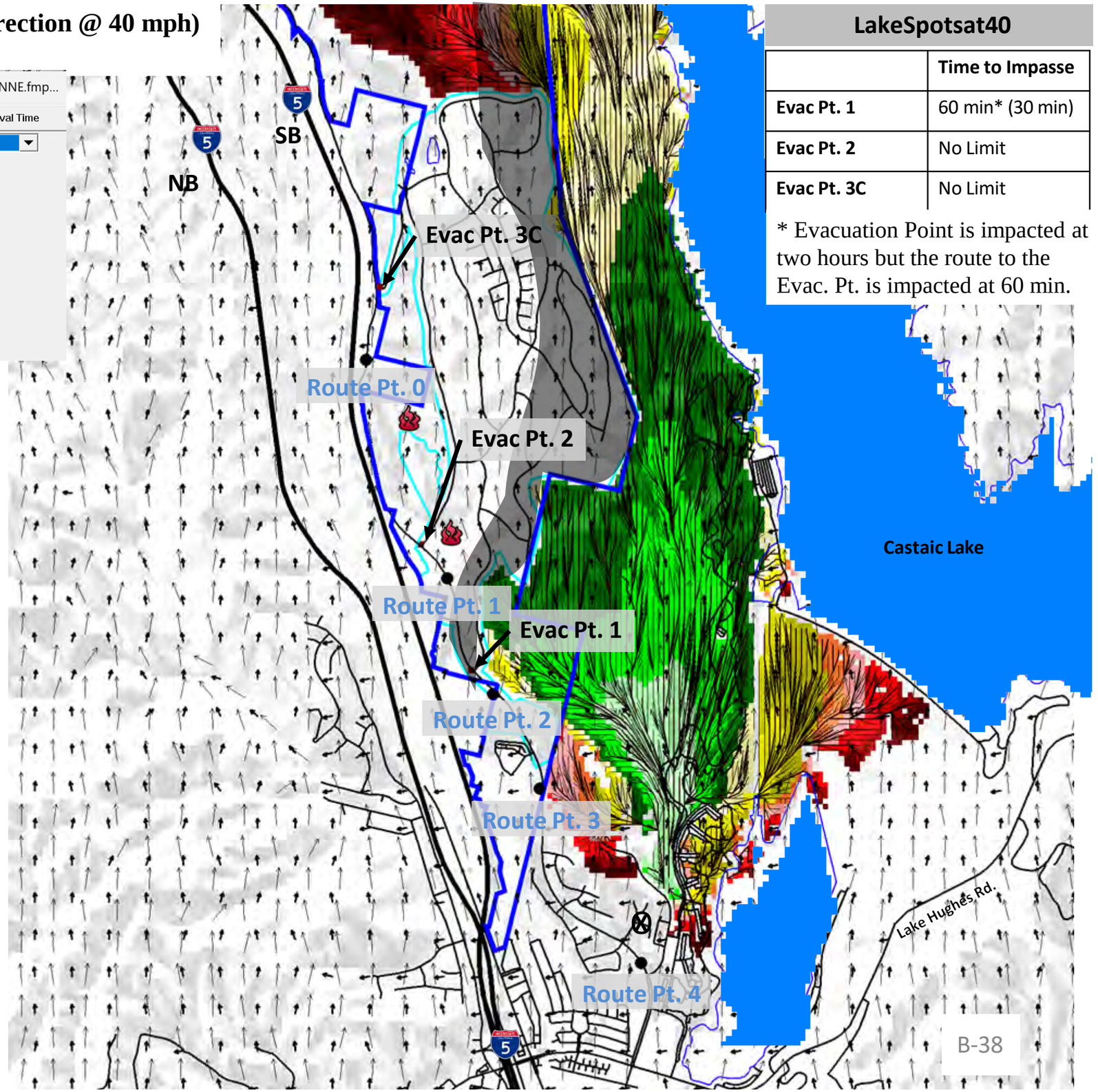
Evacuation Point
Route Point
Area of Population at Immediate Risk

Wind Direction
Spread Direction
Fire Flow Path

Origins of the Fire
Spot Fire

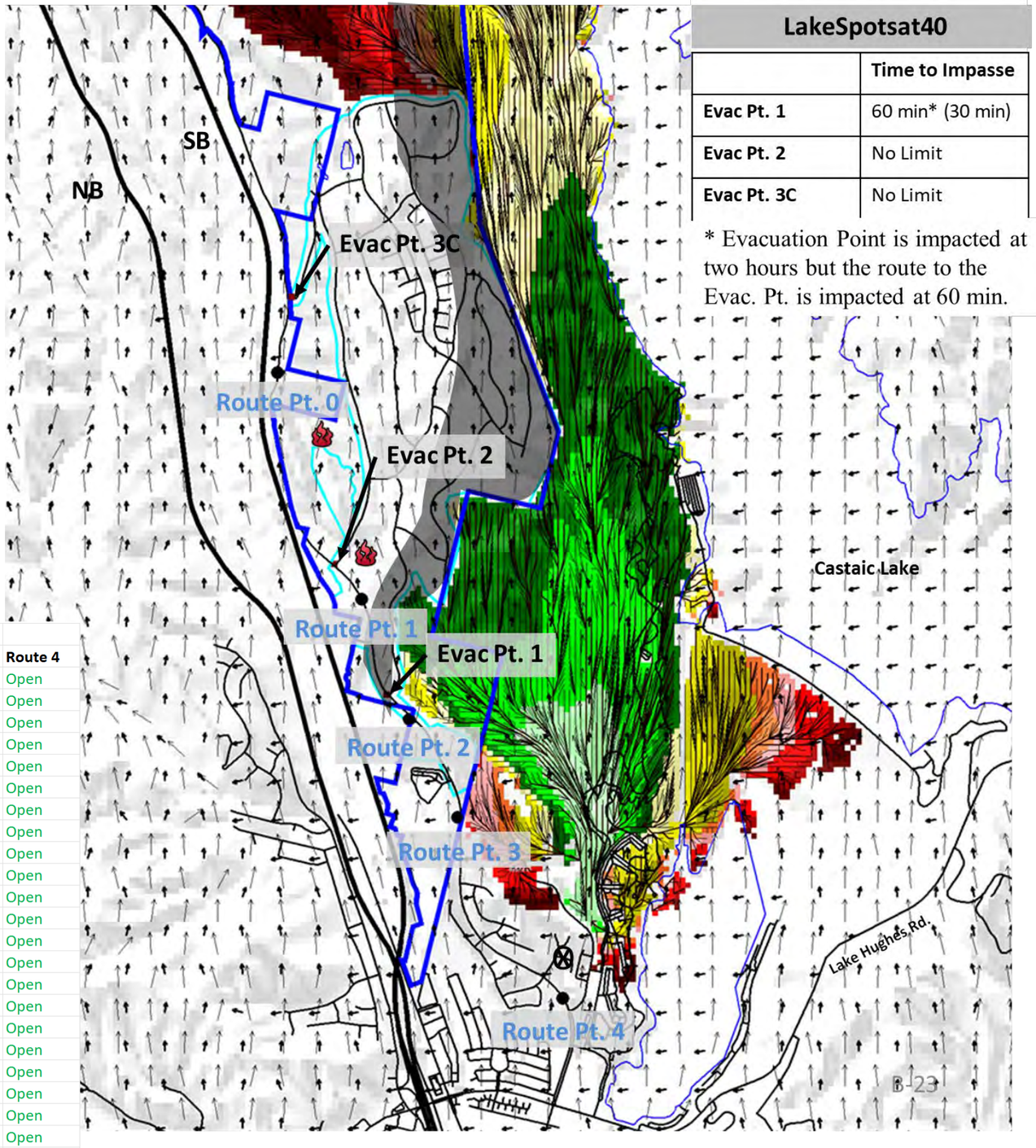
Fire does not spot over evacuation roads due to development areas

S wind at 40 Spots



Origin with the County Recreation Area (Wind S direction @ 40 mph) with Partial Creek Avoidance Development

Narrative: Fire begins as spot fires in the Recreation Area under a South Wind at 40 mph with the head fire moving to the north (branching to the east and west). Fire does not spot over roadways on the west side due to development. Fire continues to burn to the north on the east side of the Project Site.



LakeSpotsat40	
	Time to Impasse
Evac Pt. 1	60 min* (30 min)
Evac Pt. 2	No Limit
Evac Pt. 3C	No Limit

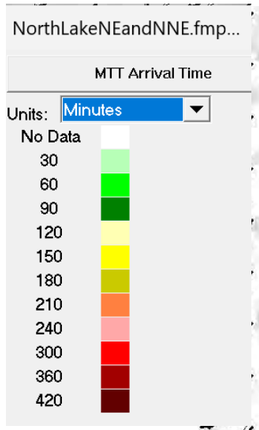
* Evacuation Point is impacted at two hours but the route to the Evac. Pt. is impacted at 60 min.

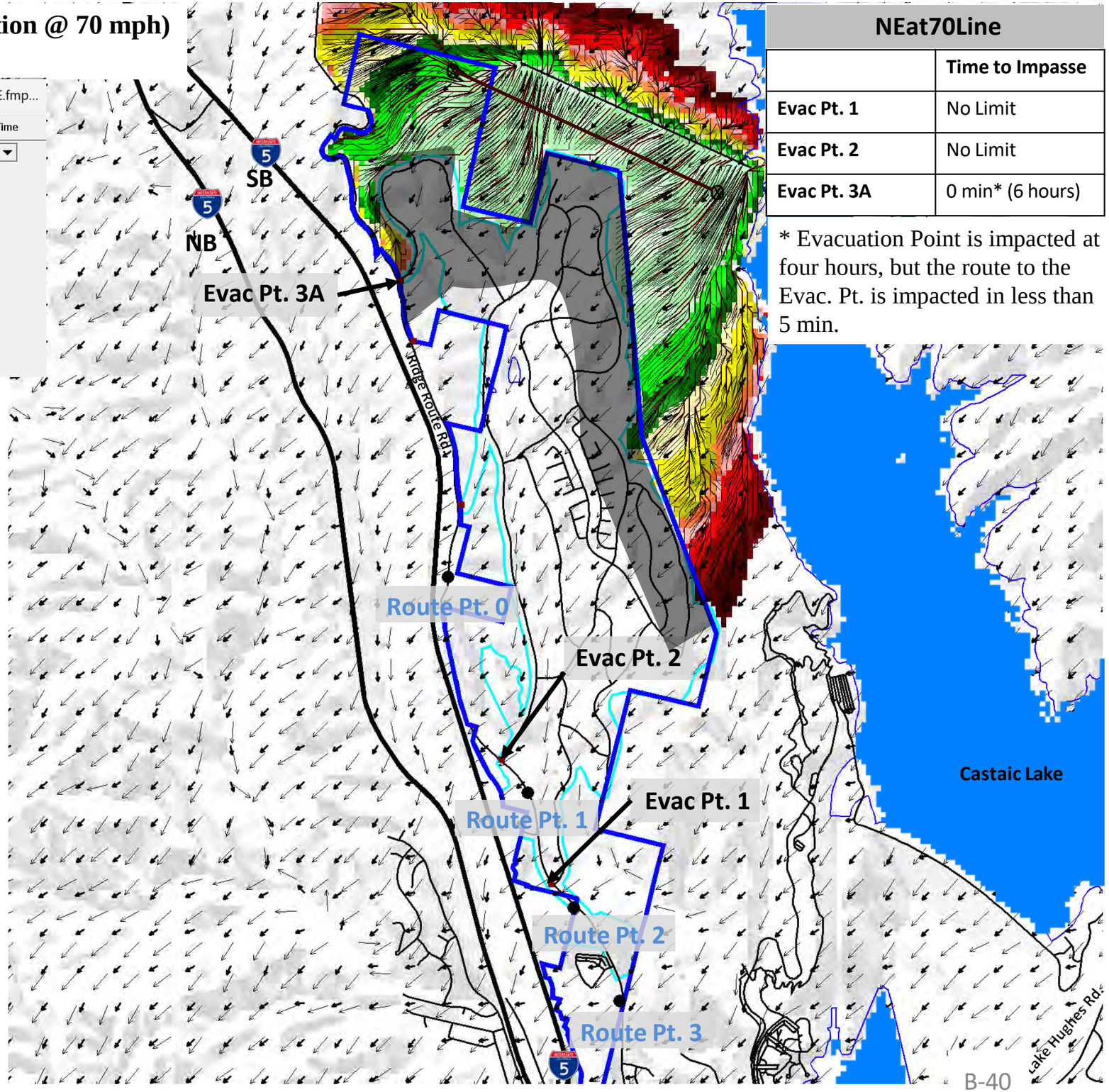
Lake Spots at 40 mph	Parital Creek Avoidance	Evacuation to the South									
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00	Closed	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
75	1:15	Closed	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
255	4:15	Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
270	4:30	Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
285	4:45	Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
300	5:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Previously Approved Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The fire was not made to spot over the freeways and start again as the wind direction will not take the fire in the direction of the development.





NEat70Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3A	0 min* (6 hours)

* Evacuation Point is impacted at four hours, but the route to the Evac. Pt. is impacted in less than 5 min.

Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

Fire Flow Path

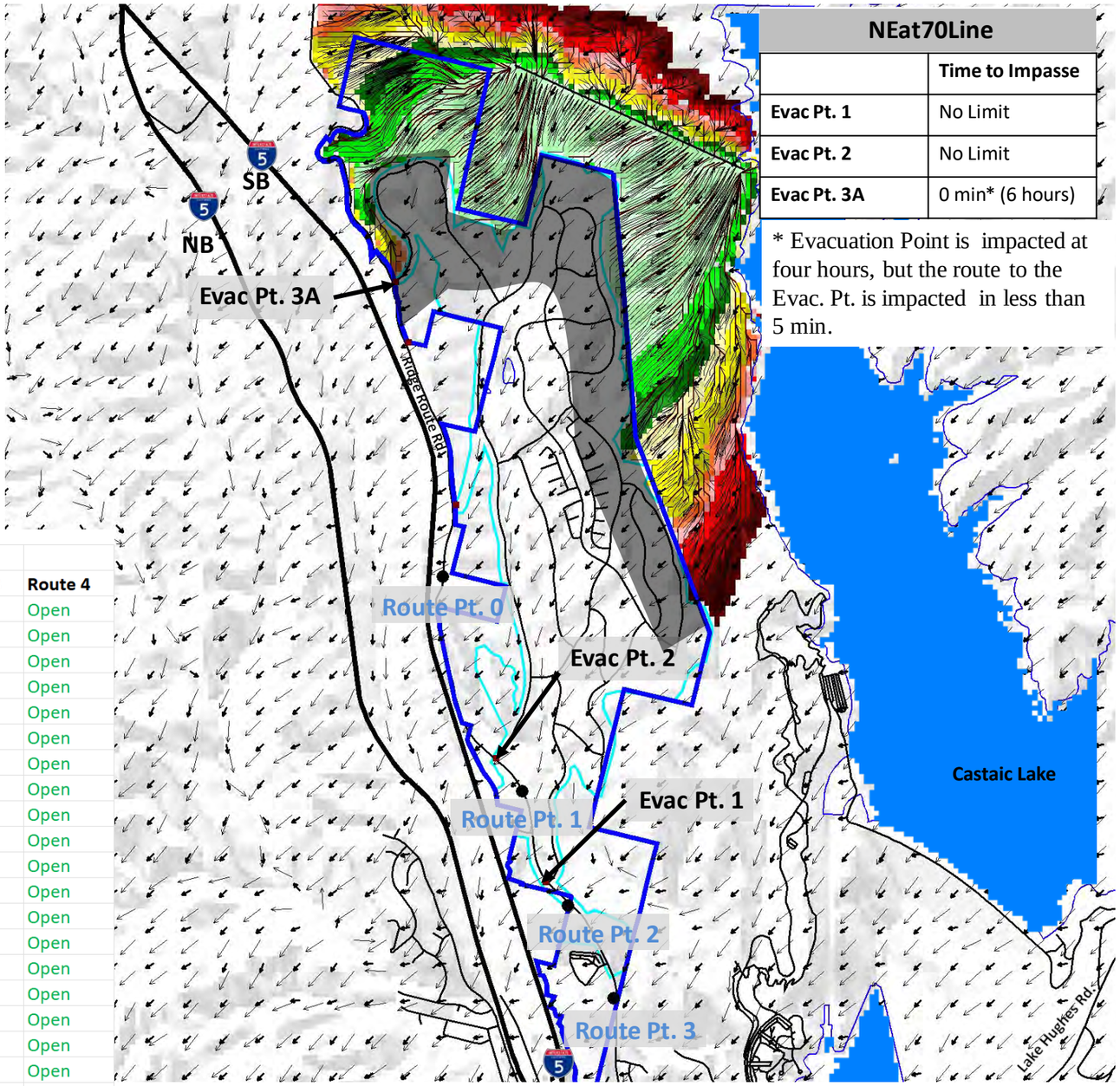
Origin of the Fire

Spot Fire

NE wind at 70 Line

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled.



NEat70Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3A	0 min* (6 hours)

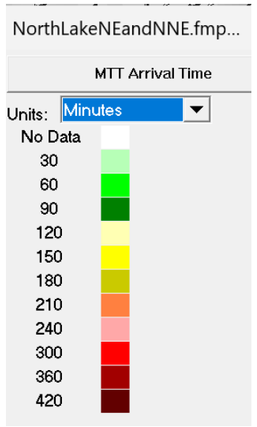
* Evacuation Point is impacted at four hours, but the route to the Evac. Pt. is impacted in less than 5 min.

NE at 70 mph Approved				Evacuation to the South							
		Evac Pt 1	**Evac Pt 2**	**Evac Pt. 3A**	**Evac Pt. 3B**	**Evac Pt. 3C**	**Route 0**	**Route 1**	**Route 2**	**Route 3**	**Route 4**
15	**0:15**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
60	**1:00**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
75	**1:15**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
90	**1:30**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
105	**1:45**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
120	**2:00**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
135	**2:15**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
150	**2:30**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
240	**4:00**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
255	**4:15**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
270	**4:30**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	**Closed**	n/a	n/a	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	**5:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	**5:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Creek Avoidance Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The fire was not made to spot over the freeways and start again as the wind direction will not take the fire in the direction of the development.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

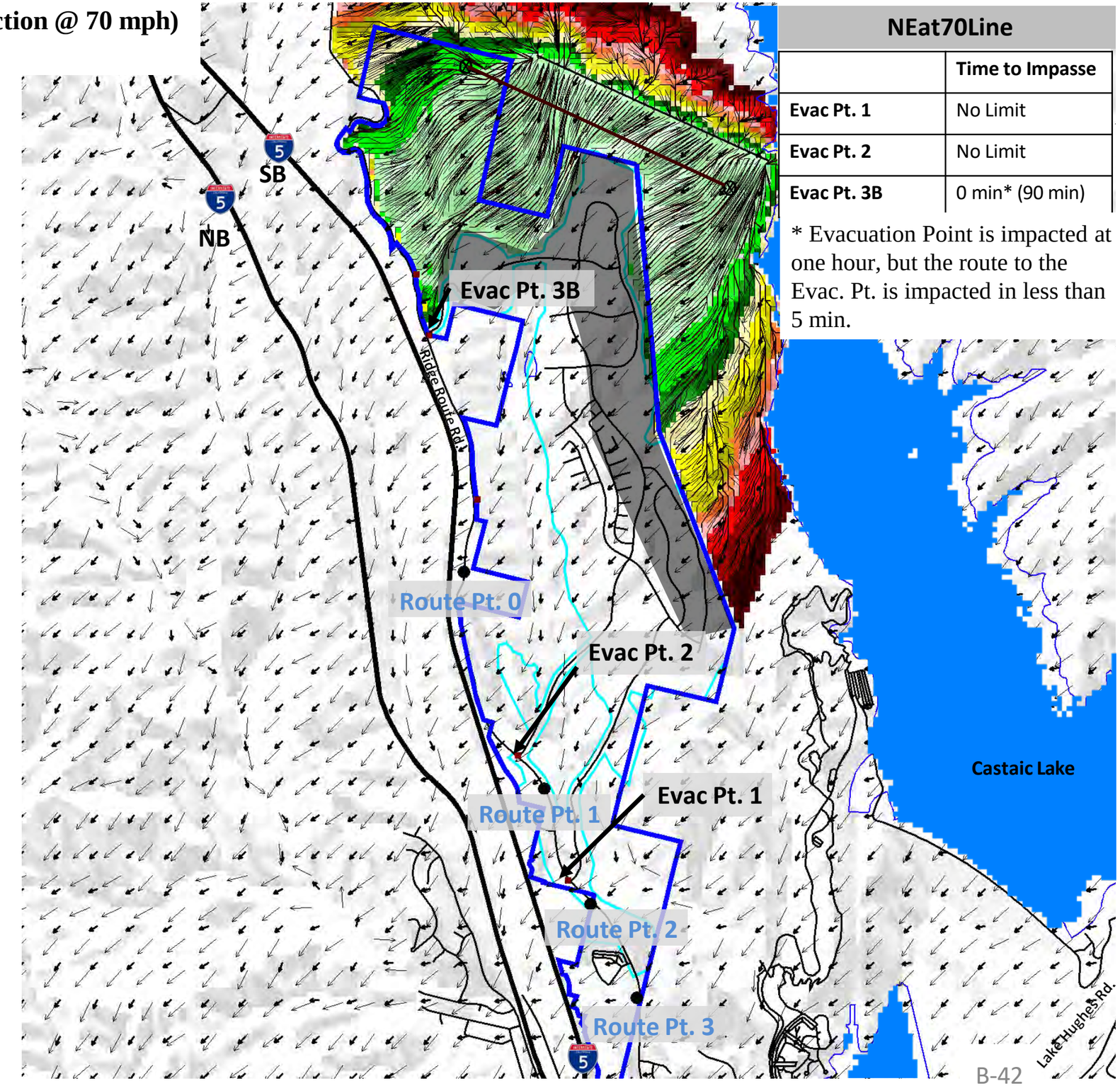
Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

NE wind at 70 Line

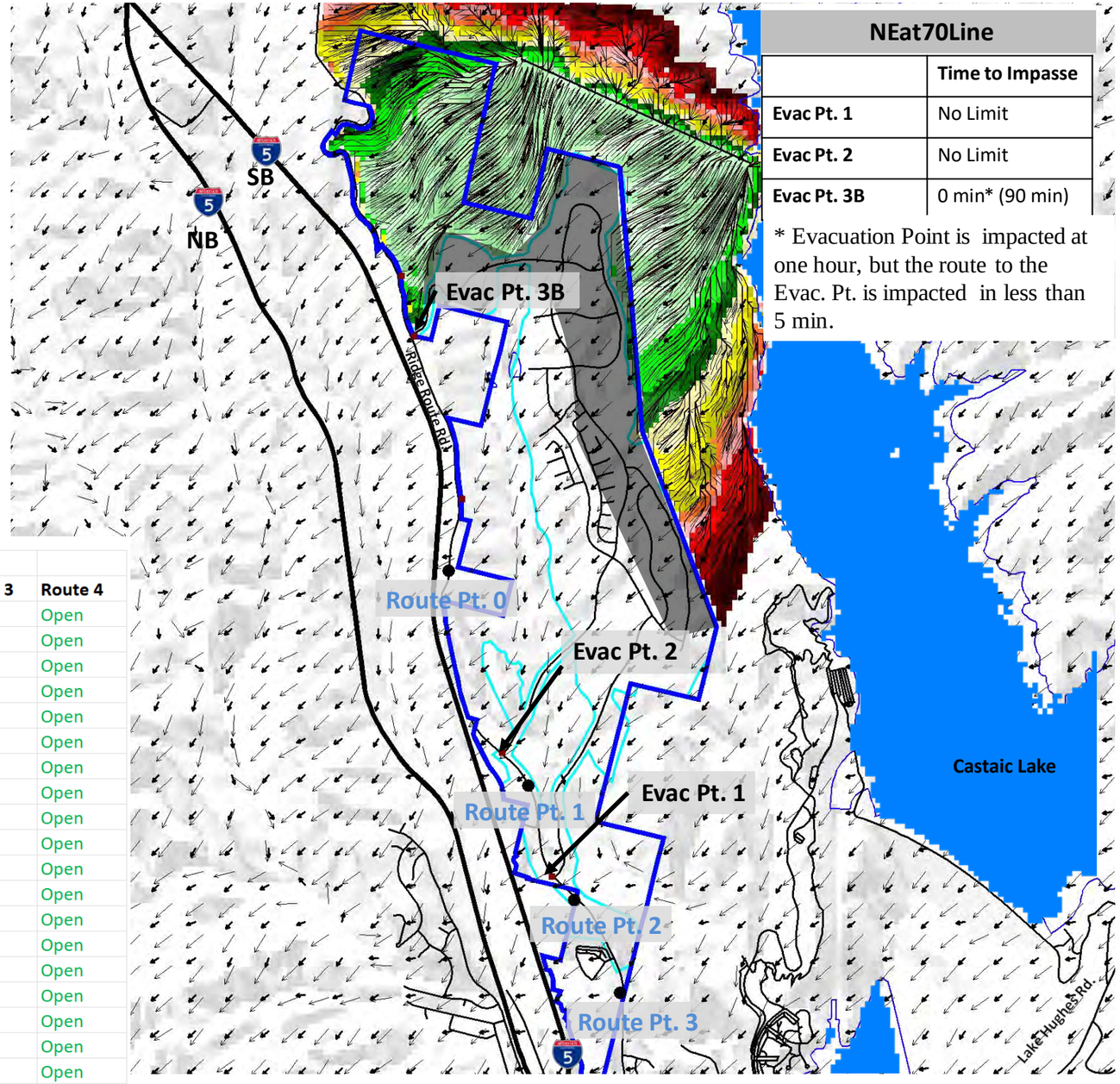


NEat70Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3B	0 min* (90 min)

* Evacuation Point is impacted at one hour, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled.

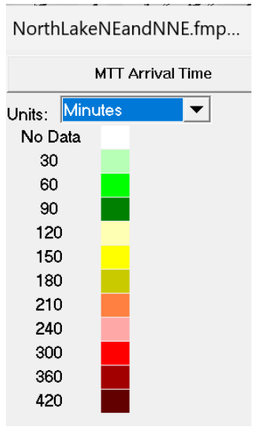


NE at 70 mph Creek Avoidance				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Partial Creek Avoidance Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The fire was not made to spot over the freeways and start again as the wind direction will not take the fire in the direction of the development.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

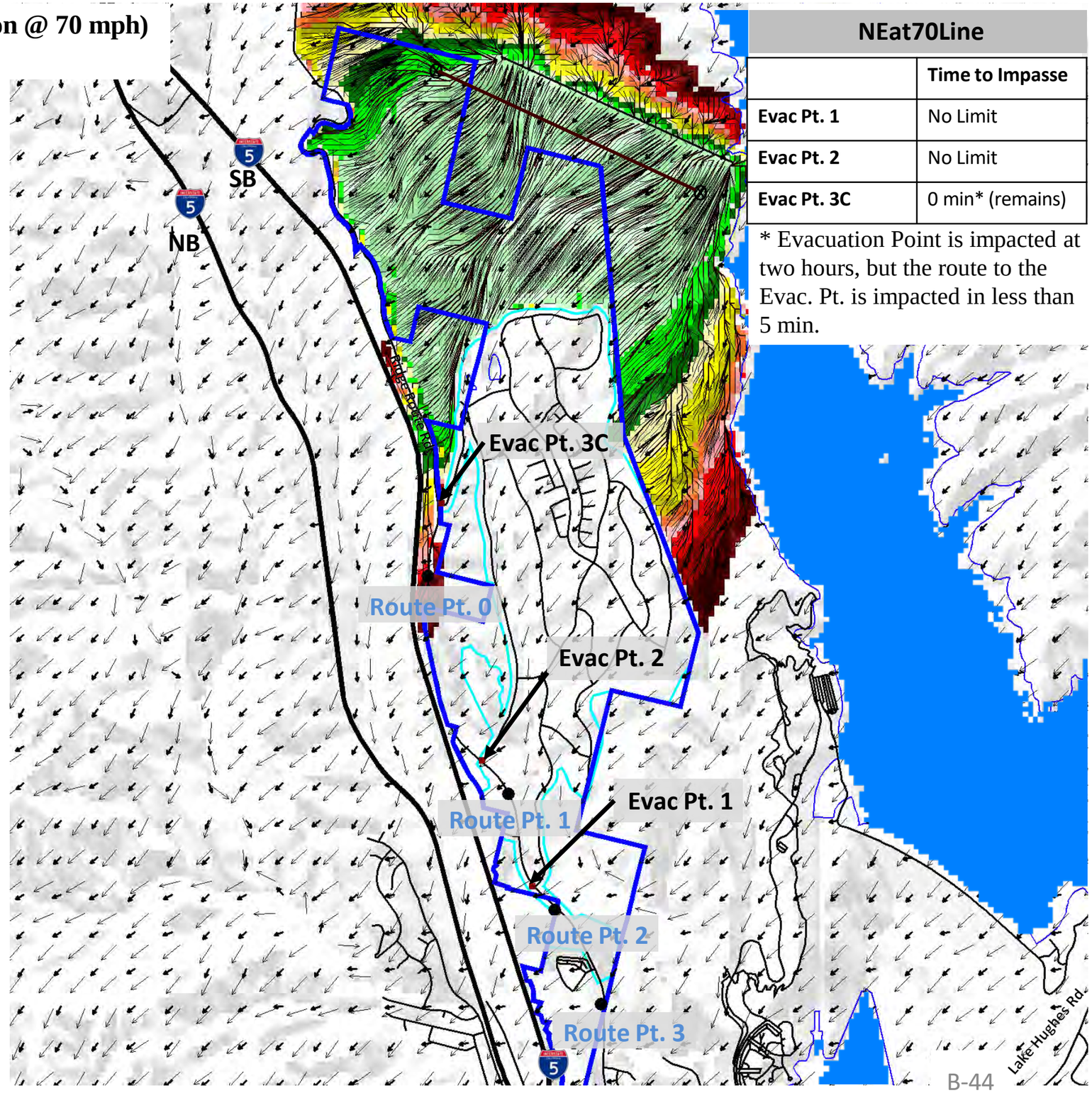
Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

NE wind at 70 Line



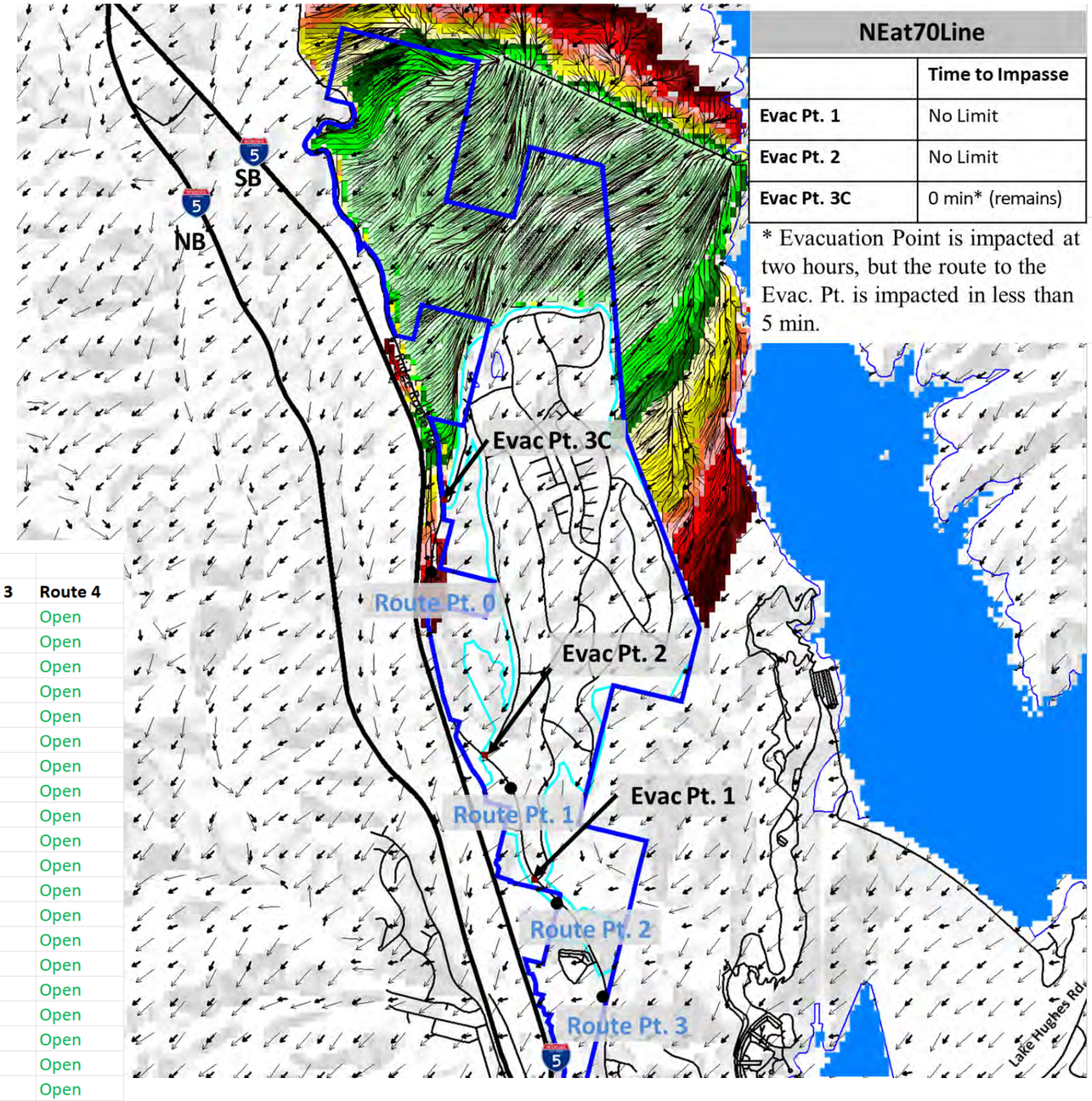
NEat70Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	0 min* (remains)

* Evacuation Point is impacted at two hours, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site (out of alignment) for the balance of the modeling timeframe.

NE at 70 mph	Parital Creek Avoidance			Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open



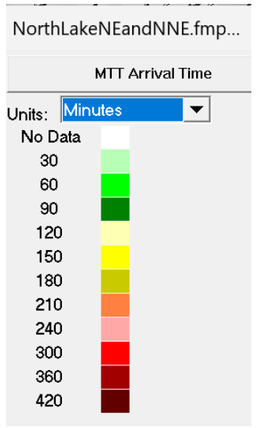
NEat70Line	
	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	0 min* (remains)

* Evacuation Point is impacted at two hours, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Previously Approved Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The change in alignment allows the fire to move more quickly on the east flank.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

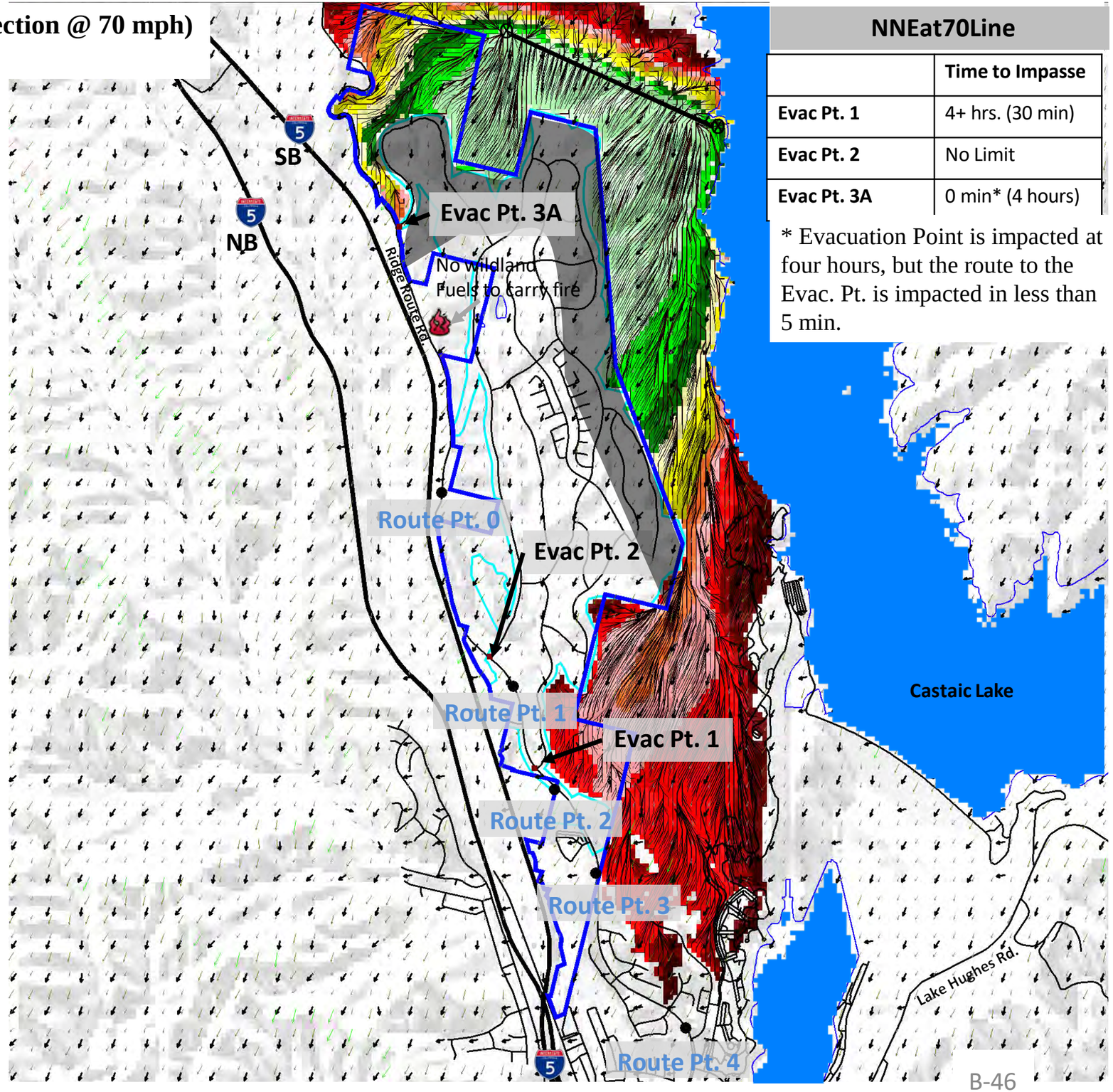
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.

NNE wind at 70 Line



NNEat70Line

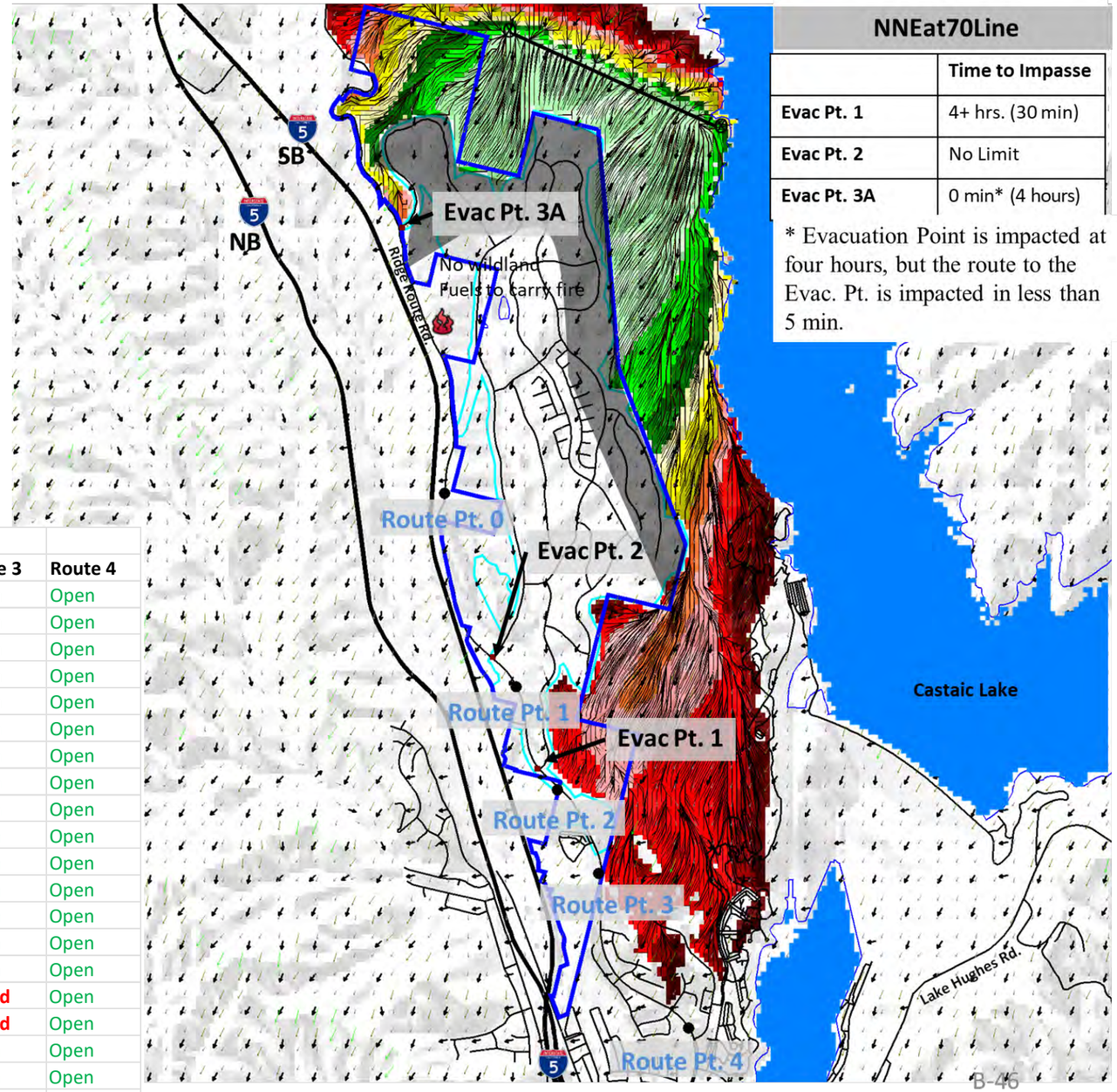
	Time to Impasse
Evac Pt. 1	4+ hrs. (30 min)
Evac Pt. 2	No Limit
Evac Pt. 3A	0 min* (4 hours)

* Evacuation Point is impacted at four hours, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NNE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately four hours into the simulated event.

NNE at 70 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Closed	Open	Closed	n/a	n/a	Open	Open	Closed	Closed	Open
255	4:15	Closed	Open	Open	n/a	n/a	Open	Open	Closed	Closed	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open



NNEat70Line

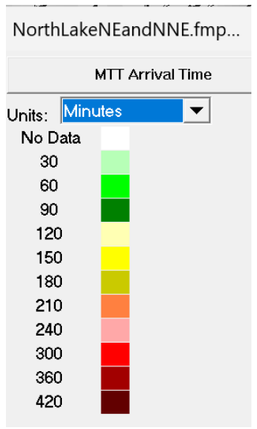
	Time to Impasse
Evac Pt. 1	4+ hrs. (30 min)
Evac Pt. 2	No Limit
Evac Pt. 3A	0 min* (4 hours)

* Evacuation Point is impacted at four hours, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Creek Avoidance Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The change in alignment allows the fire to move more quickly on the east flank.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

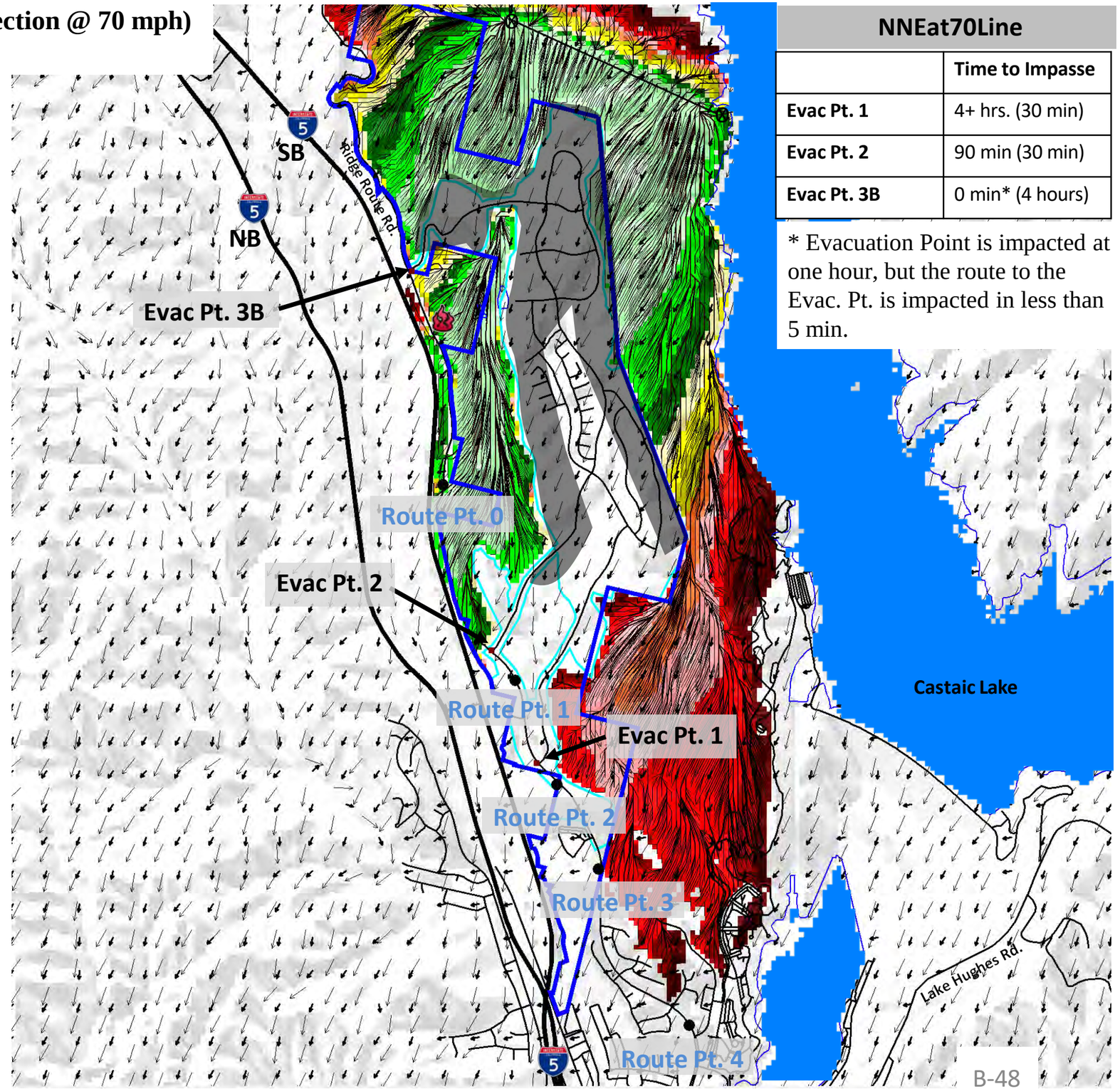
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.

NNE wind at 70 Line



NNEat70Line

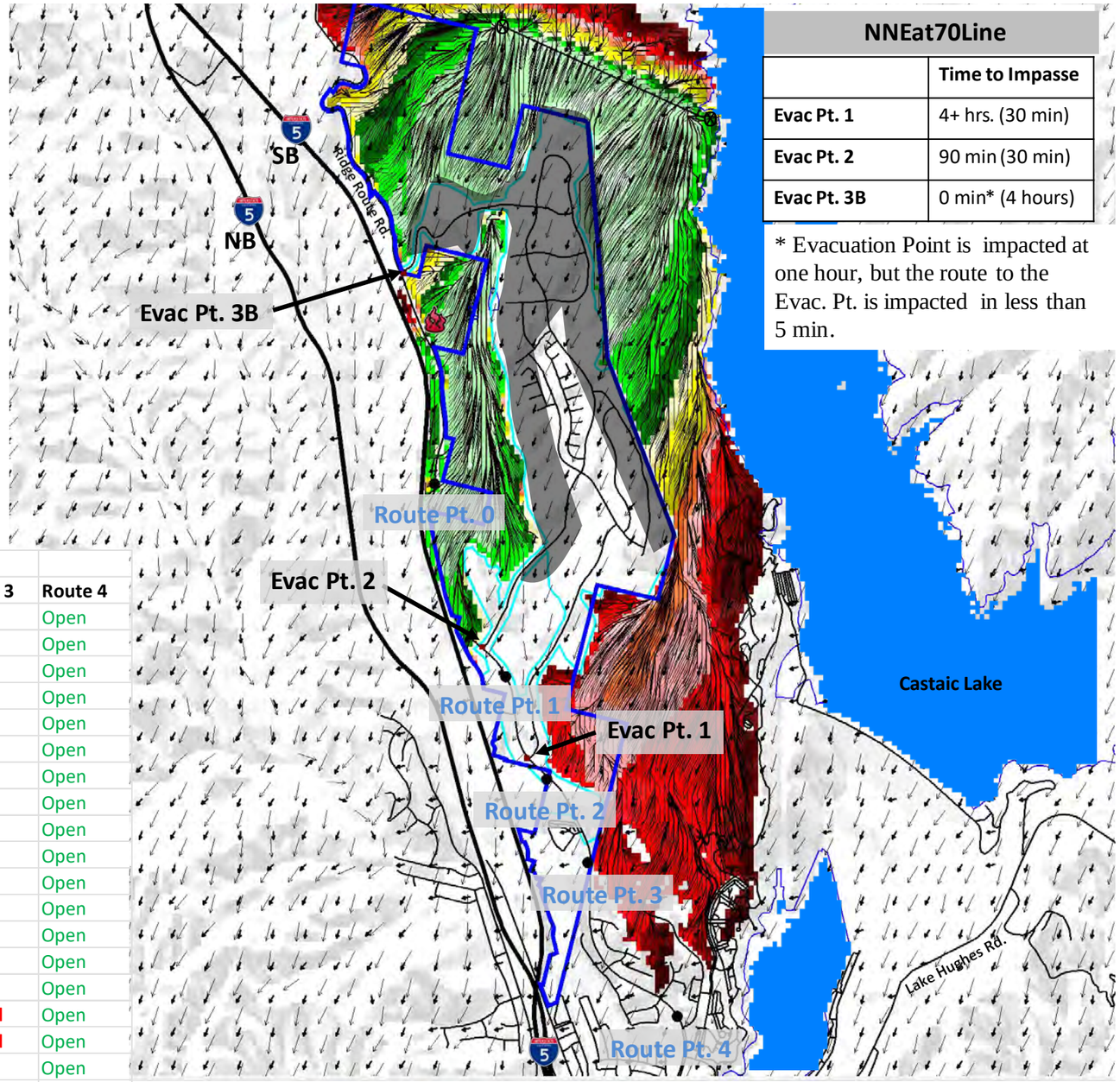
	Time to Impasse
Evac Pt. 1	4+ hrs. (30 min)
Evac Pt. 2	90 min (30 min)
Evac Pt. 3B	0 min* (4 hours)

* Evacuation Point is impacted at one hour, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NNE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately four hours into the simulated event.

NNE at 70 mph Creek Avoidance				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	**1:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	**1:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	**1:30**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
240	**4:00**	Closed	Open	n/a	Closed	n/a	Open	Open	Closed	Closed	Open
255	**4:15**	Closed	Open	n/a	Open	n/a	Open	Open	Closed	Closed	Open
270	**4:30**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open



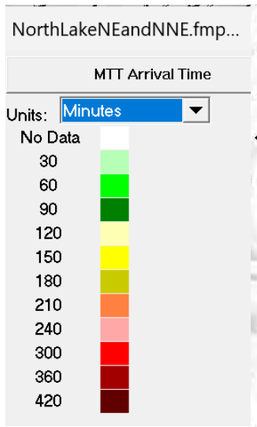
NNEat70Line	
	Time to Impasse
Evac Pt. 1	4+ hrs. (30 min)
Evac Pt. 2	90 min (30 min)
Evac Pt. 3B	0 min* (4 hours)

* Evacuation Point is impacted at one hour, but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Partial Creek Avoidance Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The change in alignment allows the fire to move more quickly on the east flank.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

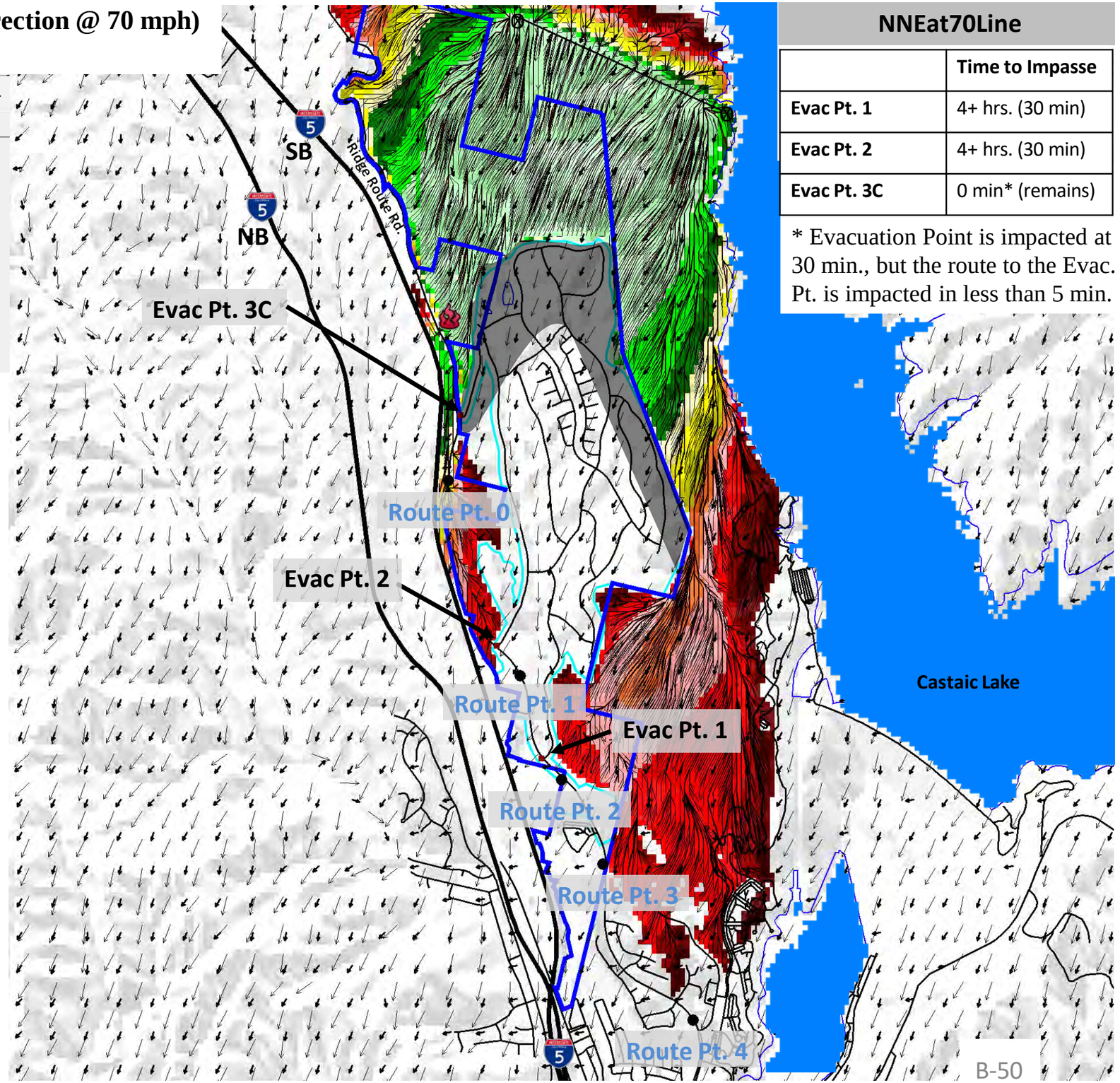
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.

NNE wind at 70 Line



NNEat70Line

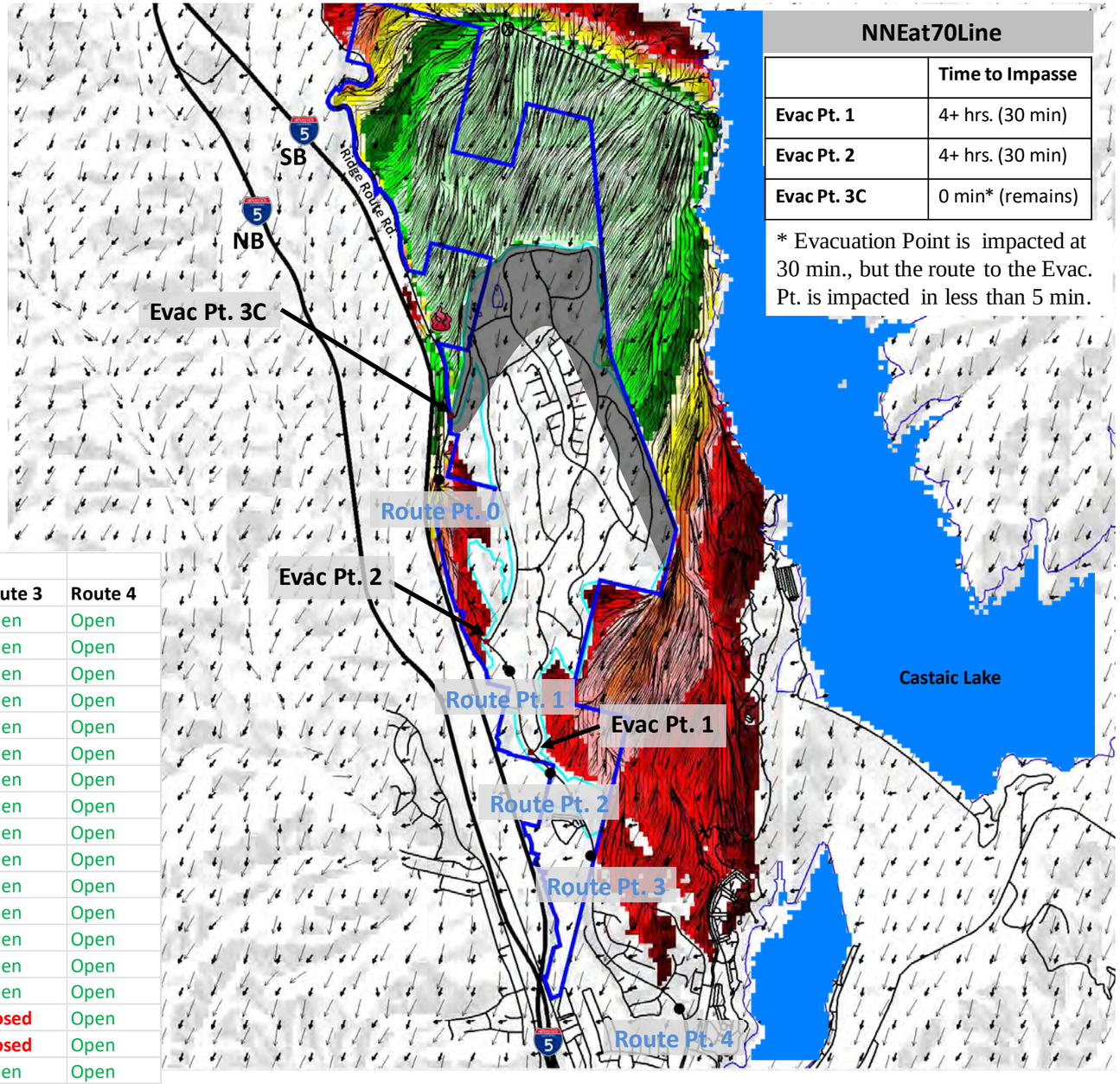
	Time to Impasse
Evac Pt. 1	4+ hrs. (30 min)
Evac Pt. 2	4+ hrs. (30 min)
Evac Pt. 3C	0 min* (remains)

* Evacuation Point is impacted at 30 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NNE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately four hours into the simulated event.

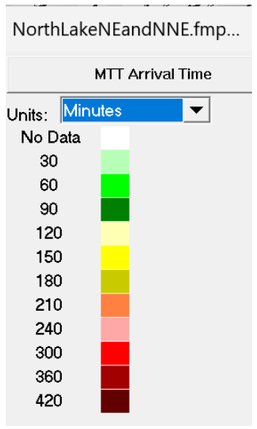
NNE at 70 mph	Parital Creek Avoidance			Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00	Closed	Open	n/a	n/a	Closed	Open	Open	Closed	Closed	Open
255	4:15	Closed	Open	n/a	n/a	Closed	Open	Open	Closed	Closed	Open
270	4:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open



Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Previously Approved Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The change in alignment allows the fire to run dramatically on the west and east flanks.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

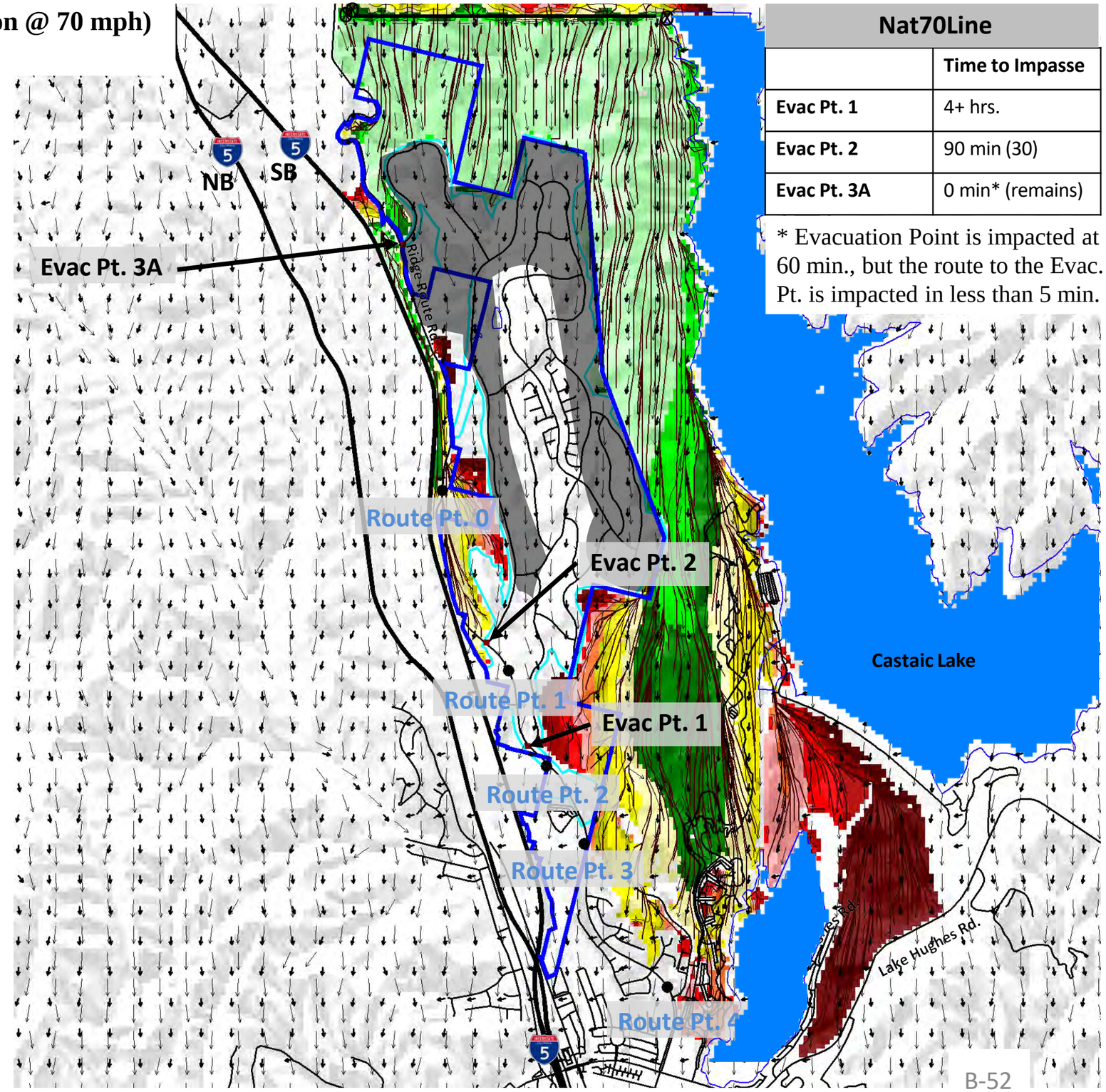
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.
First spot to second spot 30 min

N wind at 70 Line



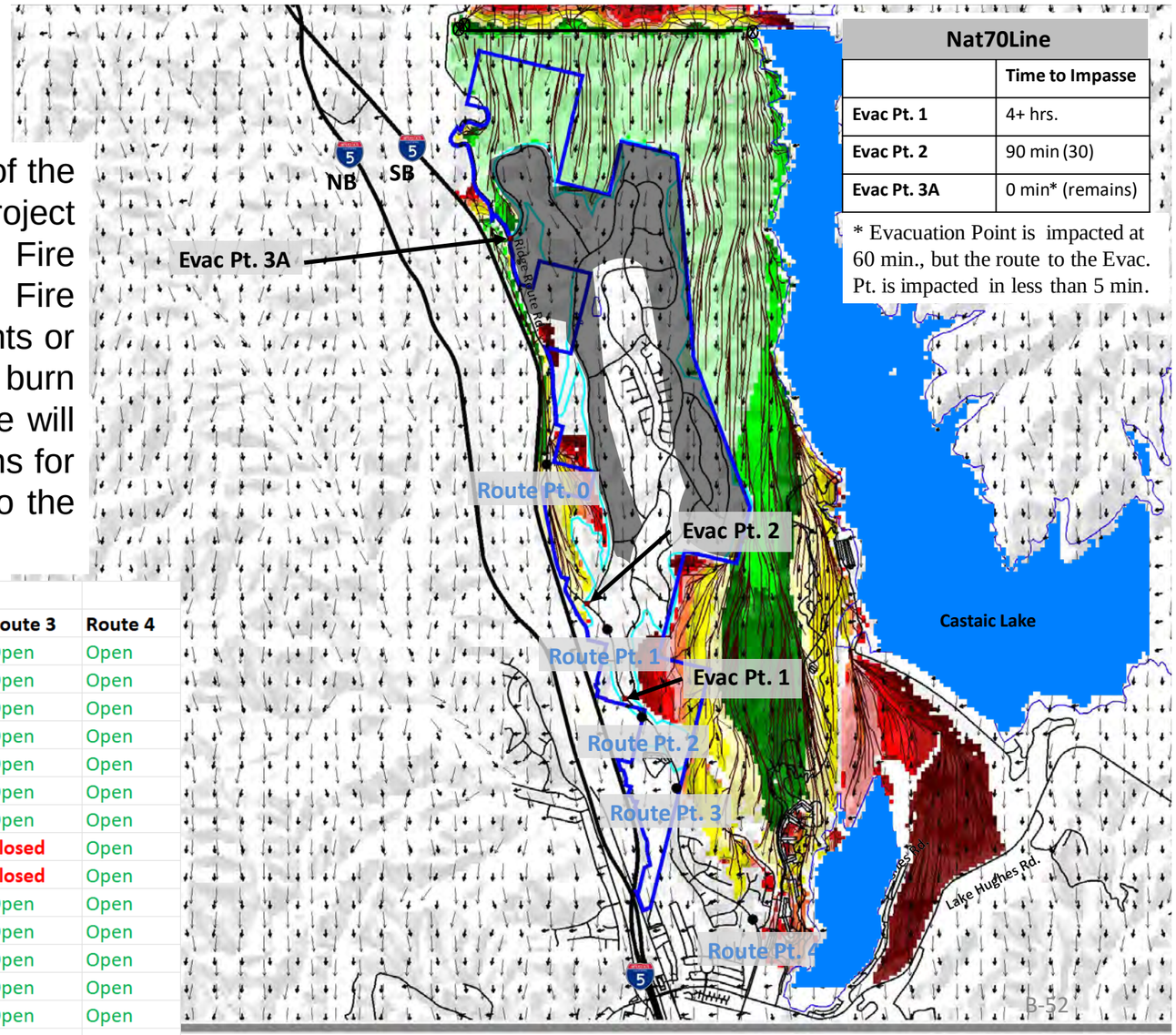
Nat70Line	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	90 min (30)
Evac Pt. 3A	0 min* (remains)

* Evacuation Point is impacted at 60 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site. Wind is from the North at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours.

N at 70 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Closed	Closed	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Closed	Closed	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Closed	Open
135	2:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Closed	Open
150	2:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Closed	Open	Closed	n/a	n/a	Open	Open	Closed	Open	Closed
255	4:15	Closed	Open	Closed	n/a	n/a	Open	Open	Closed	Open	Closed
270	4:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open



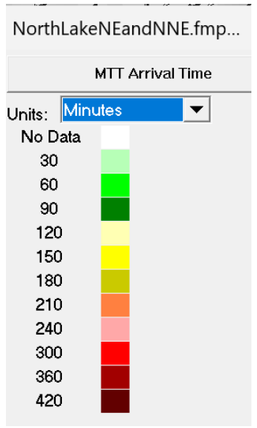
Nat70Line	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	90 min (30)
Evac Pt. 3A	0 min* (remains)

* Evacuation Point is impacted at 60 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Creek Avoidance Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The change in alignment allows the fire to run dramatically on the west and east flanks.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

Spread Direction

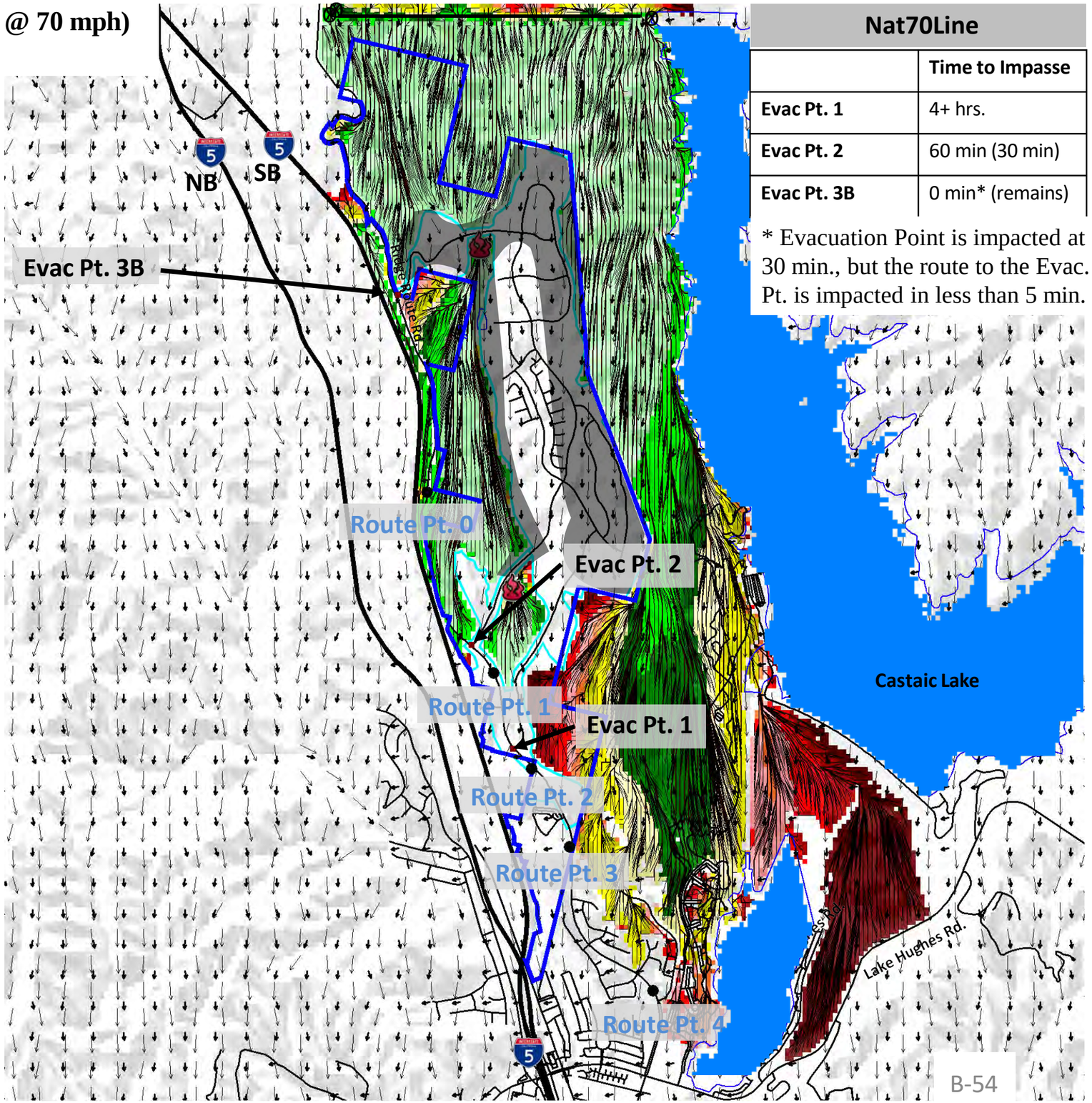
Fire Flow Path

Origin of the Fire

Spot Fire

Origin to first spot 30 min.
First spot to second spot 30 min

N wind at 70 Line



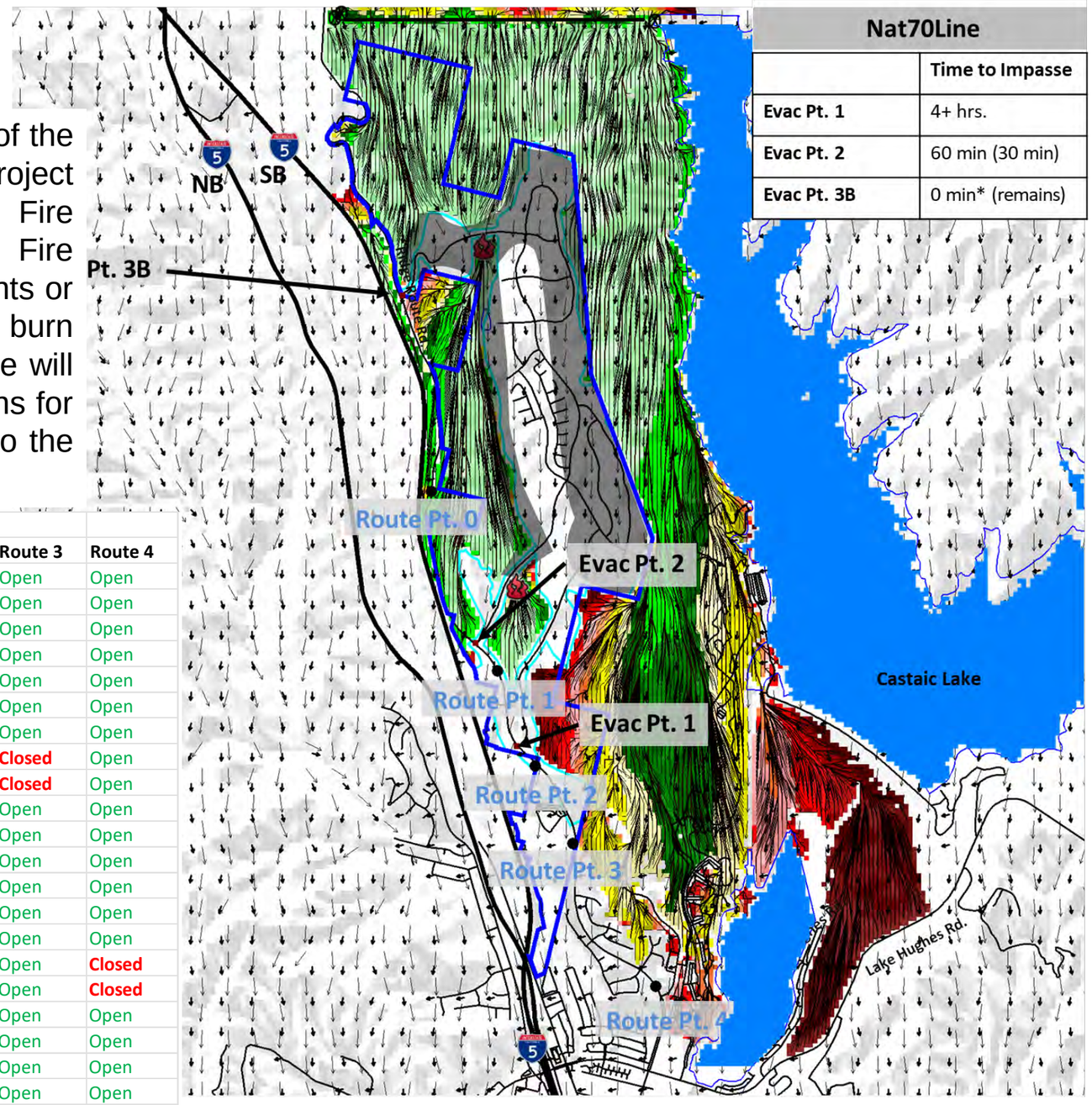
Nat70Line	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (30 min)
Evac Pt. 3B	0 min* (remains)

* Evacuation Point is impacted at 30 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site. Wind is from the North at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours.

N at 70 mph Creek Avoidance				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
60	**1:00**	Open	**Closed**	n/a	**Closed**	n/a	**Closed**	**Closed**	Open	Open	Open
75	**1:15**	Open	**Closed**	n/a	**Closed**	n/a	**Closed**	**Closed**	Open	Open	Open
90	**1:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	**Closed**	Open
135	**2:15**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	**Closed**	Open
150	**2:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
240	**4:00**	**Closed**	Open	n/a	**Closed**	n/a	Open	Open	**Closed**	Open	**Closed**
255	**4:15**	**Closed**	Open	n/a	**Closed**	n/a	Open	Open	**Closed**	Open	**Closed**
270	**4:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	**Closed**	n/a	Open	Open	Open	Open	Open

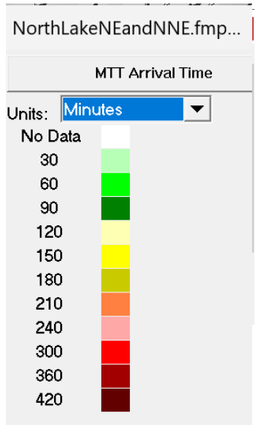


Nat70Line	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (30 min)
Evac Pt. 3B	0 min* (remains)

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Partial Creek Avoidance Development

This fire with 70 mph winds (sustained) shows the timing from the fire as it interfaces with the proposed community.

The change in alignment allows the fire to run dramatically on the west and east flanks.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

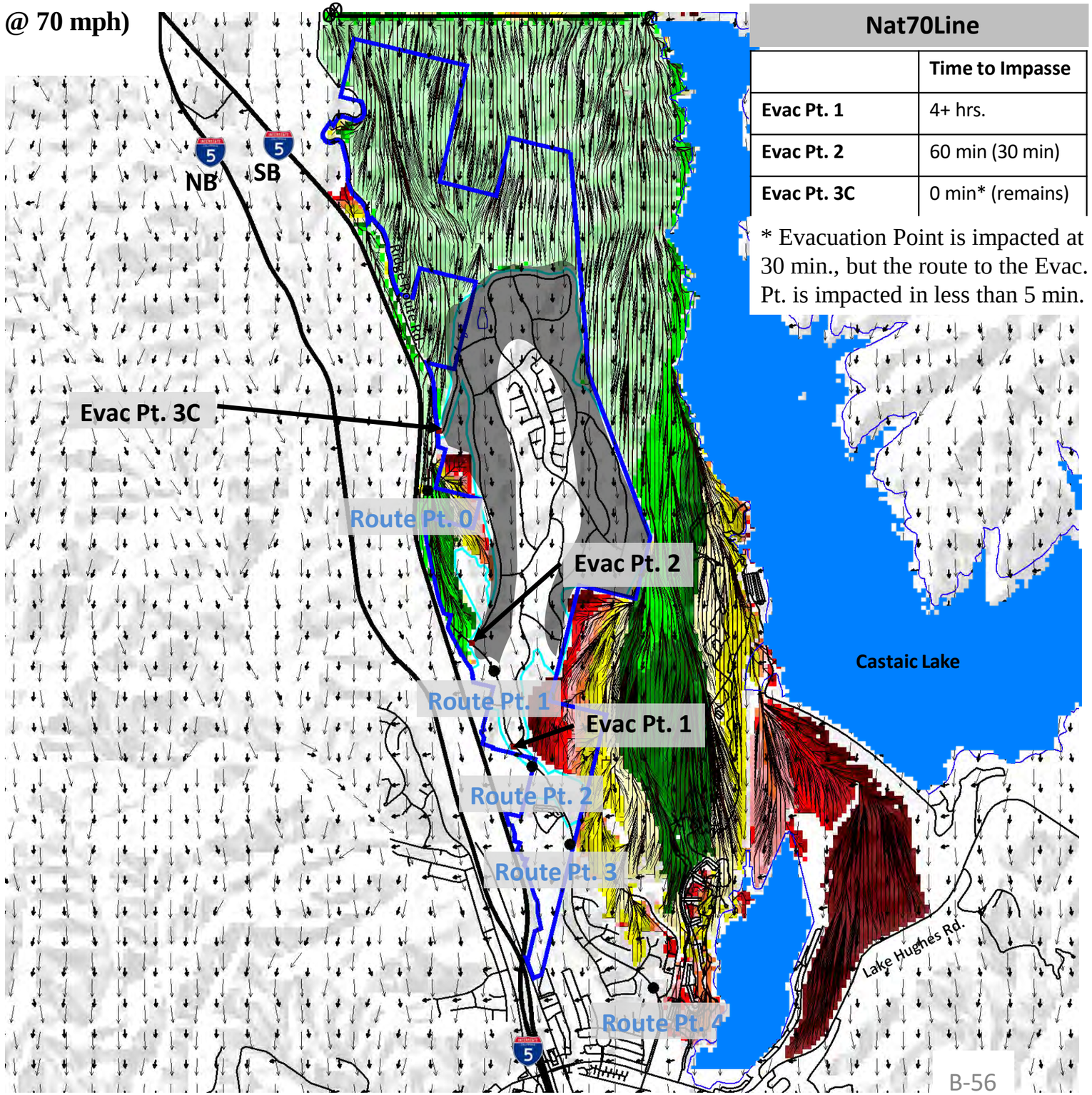
Evacuation Point

Route Point

Area of Population at Immediate Risk

Origin to first spot 30 min.
First spot to second spot 30 min

N wind at 70 Line



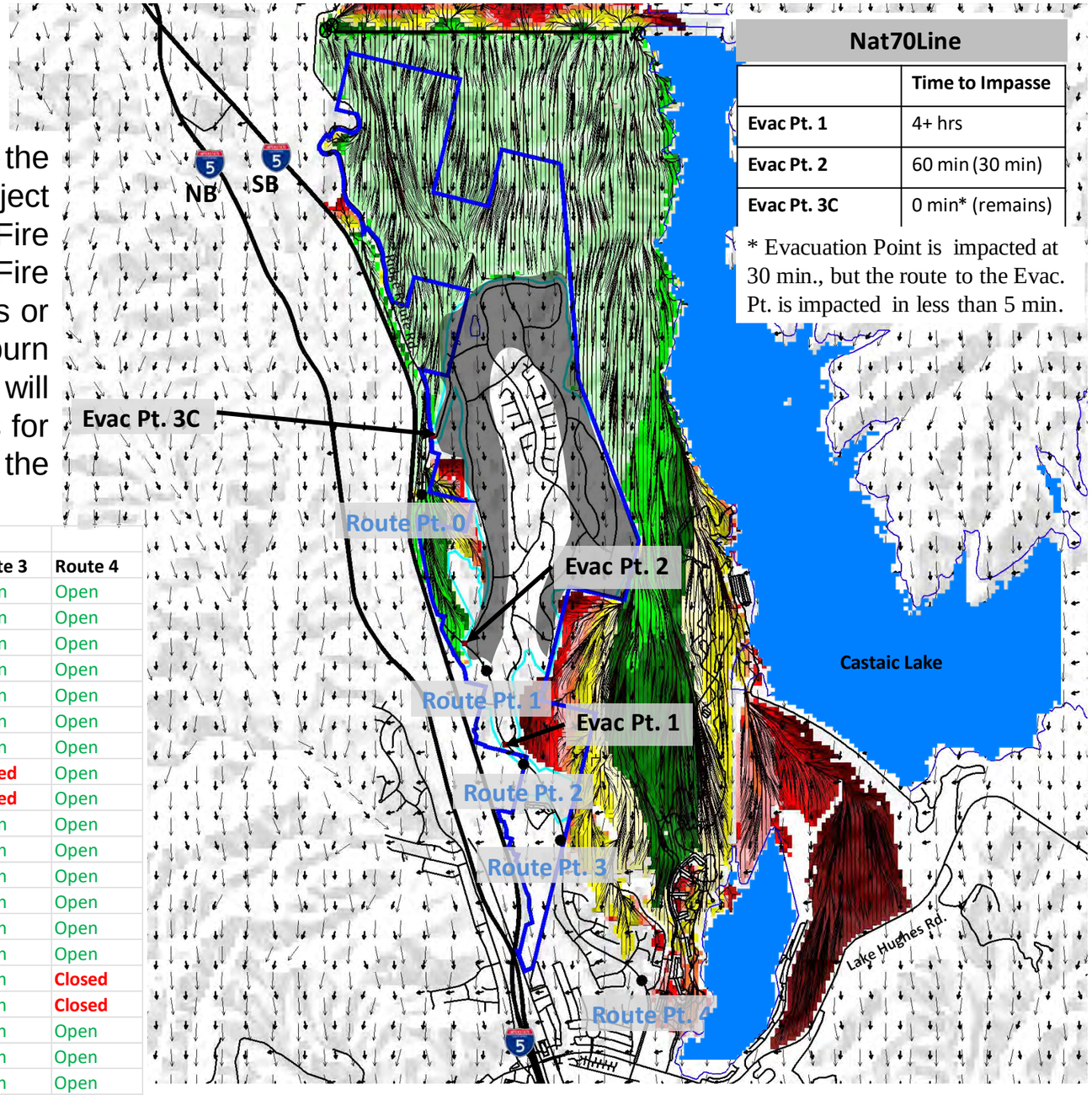
Nat70Line	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (30 min)
Evac Pt. 3C	0 min* (remains)

* Evacuation Point is impacted at 30 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site. Wind is from the North at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours.

N at 70 mph	Parital Creek Avoidance			Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
60	**1:00**	Open	**Closed**	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
75	**1:15**	Open	**Closed**	n/a	n/a	**Closed**	**Closed**	Open	Open	Open	Open
90	**1:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	**Closed**	Open
135	**2:15**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	**Closed**	Open
150	**2:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
240	**4:00**	**Closed**	Open	n/a	n/a	**Closed**	Open	Open	**Closed**	Open	**Closed**
255	**4:15**	**Closed**	Open	n/a	n/a	**Closed**	Open	Open	**Closed**	Open	**Closed**
270	**4:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
315	**5:15**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
330	**5:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	n/a	**Closed**	Open	Open	Open	Open	Open



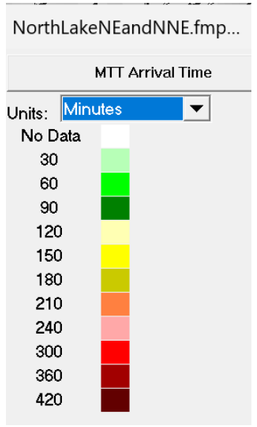
Nat70Line

	Time to Impasse
Evac Pt. 1	4+ hrs
Evac Pt. 2	60 min (30 min)
Evac Pt. 3C	0 min* (remains)

* Evacuation Point is impacted at 30 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Templin Highway and Ridge Route Road Trigger Point
Previously Approved Development

Fire does not impact the southern evacuation routes for over 3 hours. By this time, the fire front has pasted the balance of the project site. A fire of this size in this direction is not within the current fire history database in this area.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Wind Direction

Spread Direction

Fire Flow Path

Origin of the Fire

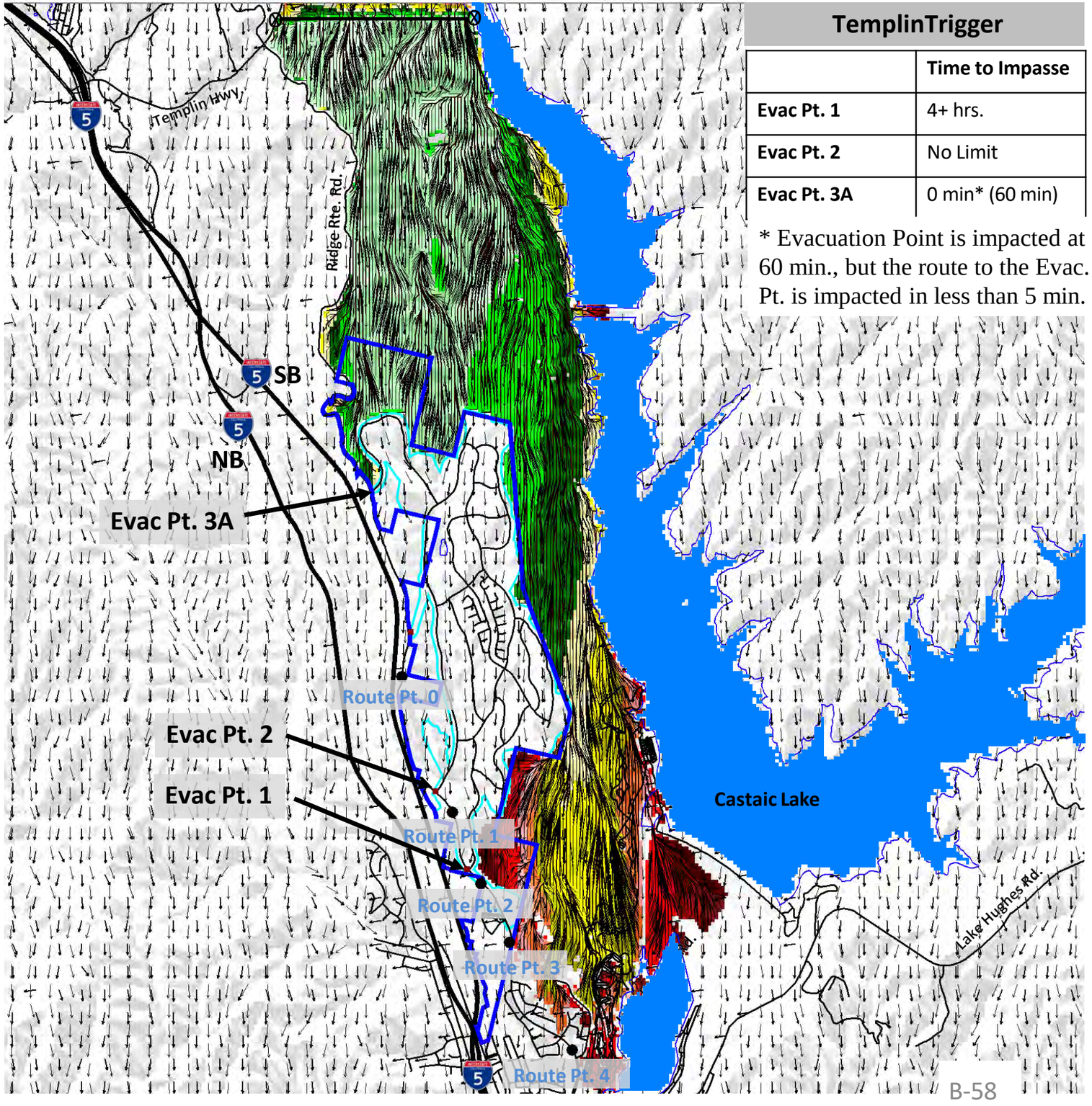
Spot Fire

Evacuation Point

Route Point

Area of Population at Immediate Risk

N wind at 70 Line



TemplinTrigger

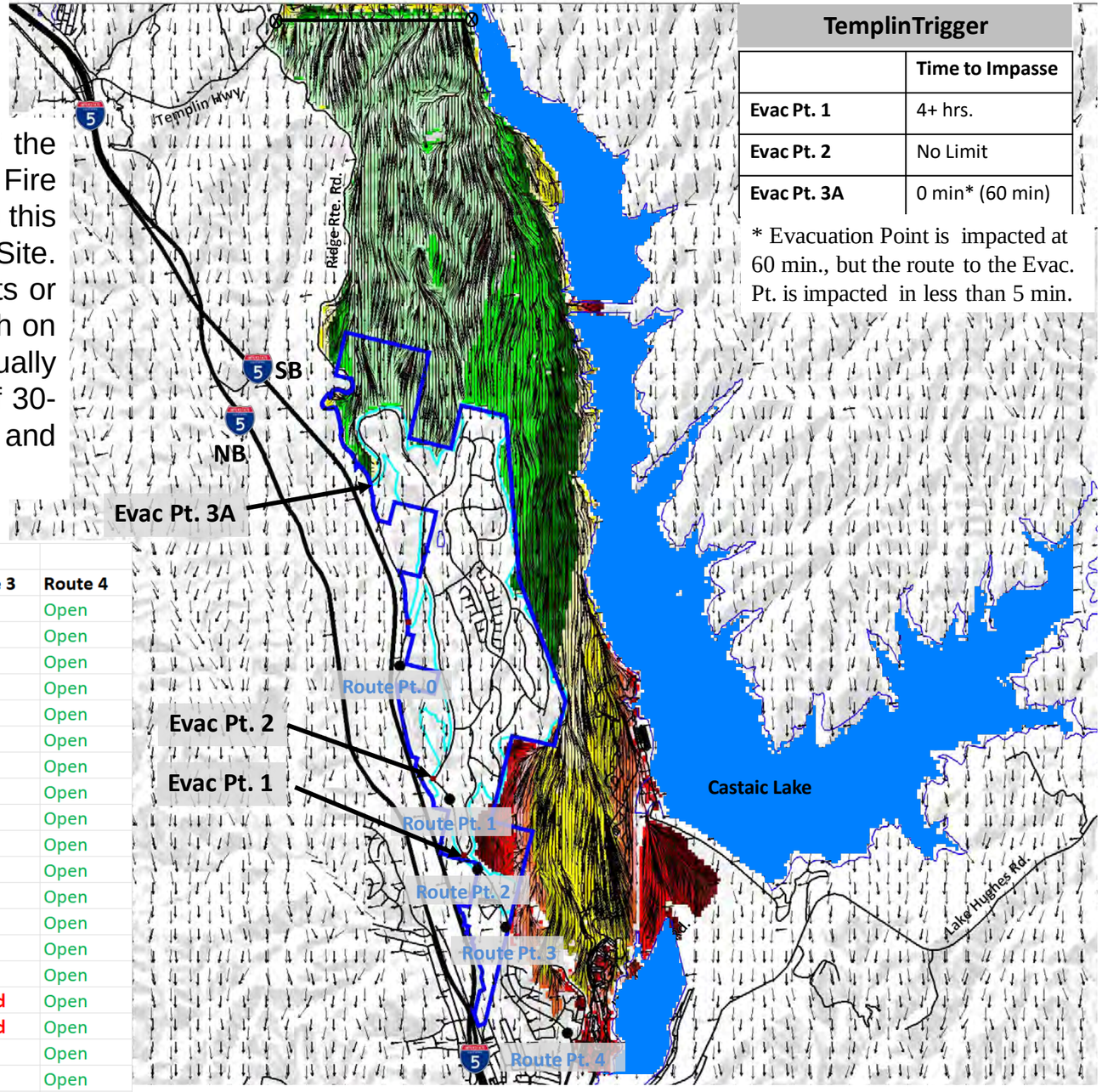
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	No Limit
Evac Pt. 3A	0 min* (60 min)

* Evacuation Point is impacted at 60 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Templin Highway and Ridge Route Road Trigger Point
Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site at Templin Highway. Wind is from the North at 70 mph. Fire impact the Project Site in less than 10 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 3A. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours and again at five hours.

Templin at 70 mph Approved				Evacuation to the South							
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Closed	Open	Open	n/a	n/a	Open	Open	Open	Closed	Open
255	4:15	Closed	Open	Open	n/a	n/a	Open	Open	Open	Closed	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Closed	Open	Closed
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Closed	Open	Closed
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open



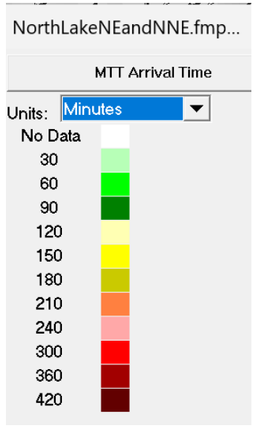
TemplinTrigger	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	No Limit
Evac Pt. 3A	0 min* (60 min)

* Evacuation Point is impacted at 60 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Templin Highway and Ridge Route Road Trigger Point Creek Avoidance Development

Fire does not impact the southern evacuation routes for over 3 hours. By this time, the fire front has pasted the balance of the project site. A fire of this size in this direction is not within the current fire history database in this area.

Origin to first spot 30 min.
First spot to second spot 30 min



Streets
Project Boundary
Freeway
Development Area
Route Fire Perimeter

Wind Direction
Spread Direction
Fire Flow Path

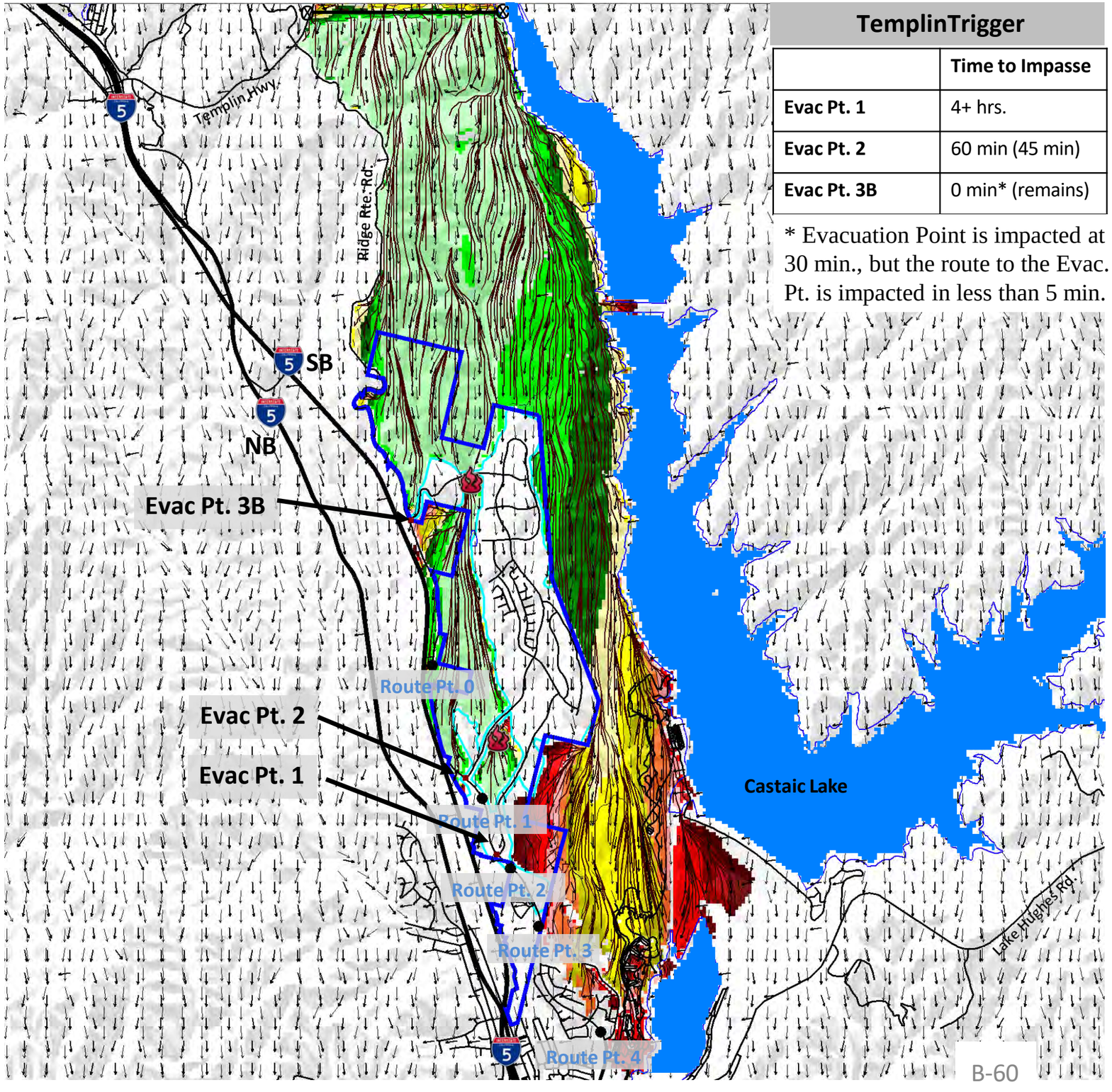
Origin of the Fire
Spot Fire

Evacuation Point
Route Point
Area of Population at Immediate Risk

N wind at 70 Line

TemplinTrigger	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (45 min)
Evac Pt. 3B	0 min* (remains)

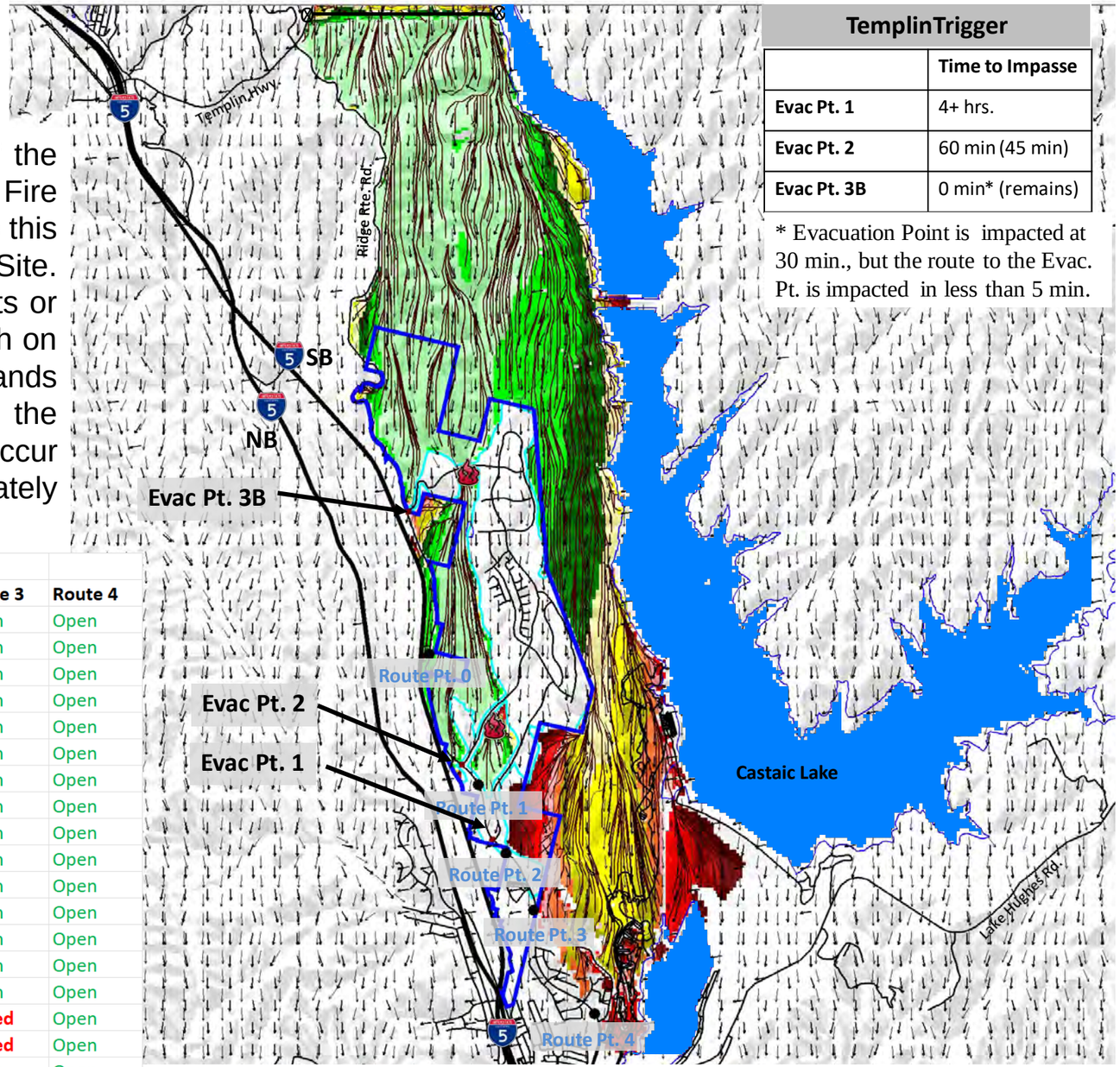
* Evacuation Point is impacted at 30 min., but the route to the Evac. Pt. is impacted in less than 5 min.



Templin Highway and Ridge Route Road Trigger Point Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site at Templin Highway. Wind is from the North at 70 mph. Fire impact the Project Site in less than 10 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 1 due to the fuel islands between the access roads. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours and again at five hours.

Templin at 70 mph Creek Avoidance		Evacuation to the South									
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	Closed	n/a	Closed	Closed	Open	Open	Open
75	1:15	Open	Closed	n/a	Closed	n/a	Closed	Closed	Open	Open	Open
90	1:30	Open	Closed	n/a	Closed	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
240	4:00	Closed	Open	n/a	Closed	n/a	Open	Open	Open	Closed	Open
255	4:15	Closed	Open	n/a	Closed	n/a	Open	Open	Open	Closed	Open
270	4:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Open	Closed
315	5:15	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Open	Closed
330	5:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open

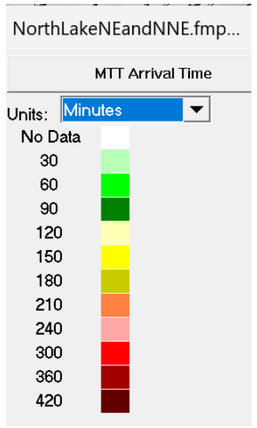


TemplinTrigger	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (45 min)
Evac Pt. 3B	0 min* (remains)

* Evacuation Point is impacted at 30 min., but the route to the Evac. Pt. is impacted in less than 5 min.

Templin Highway and Ridge Route Road Trigger Point Partial Creek Avoidance Development

Fire does not impact the southern evacuation routes for over 3 hours. By this time, the fire front has pasted the balance of the project site. A fire of this size in this direction is not within the current fire history database in this area.



Streets

Project Boundary

Freeway

Development Area

Route Fire Perimeter

Evacuation Point

Route Point

Area of Population at Immediate Risk

Wind Direction

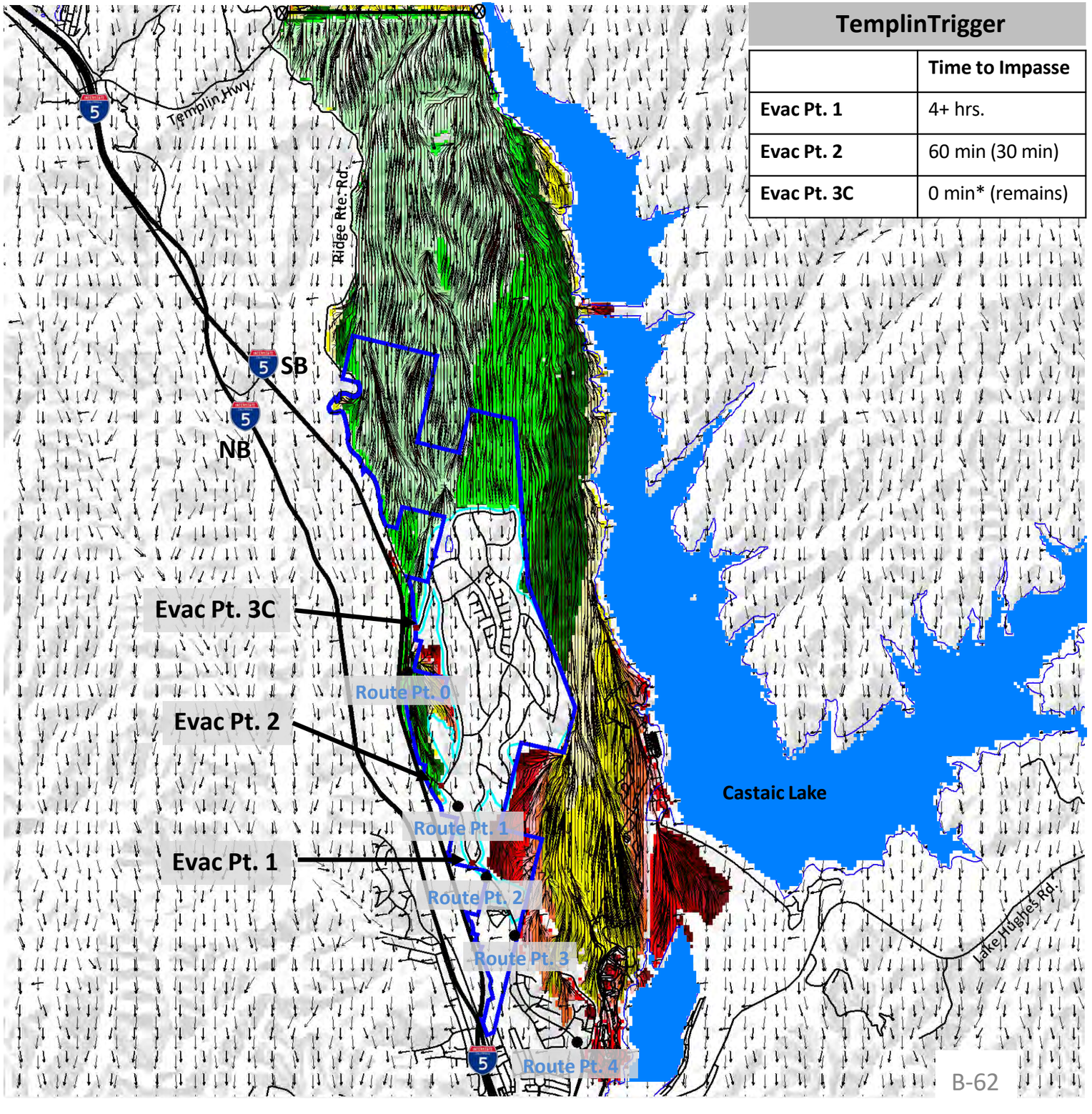
Spread Direction

Fire Flow Path

Origin of the Fire

Spot Fire

N wind at 70 Line



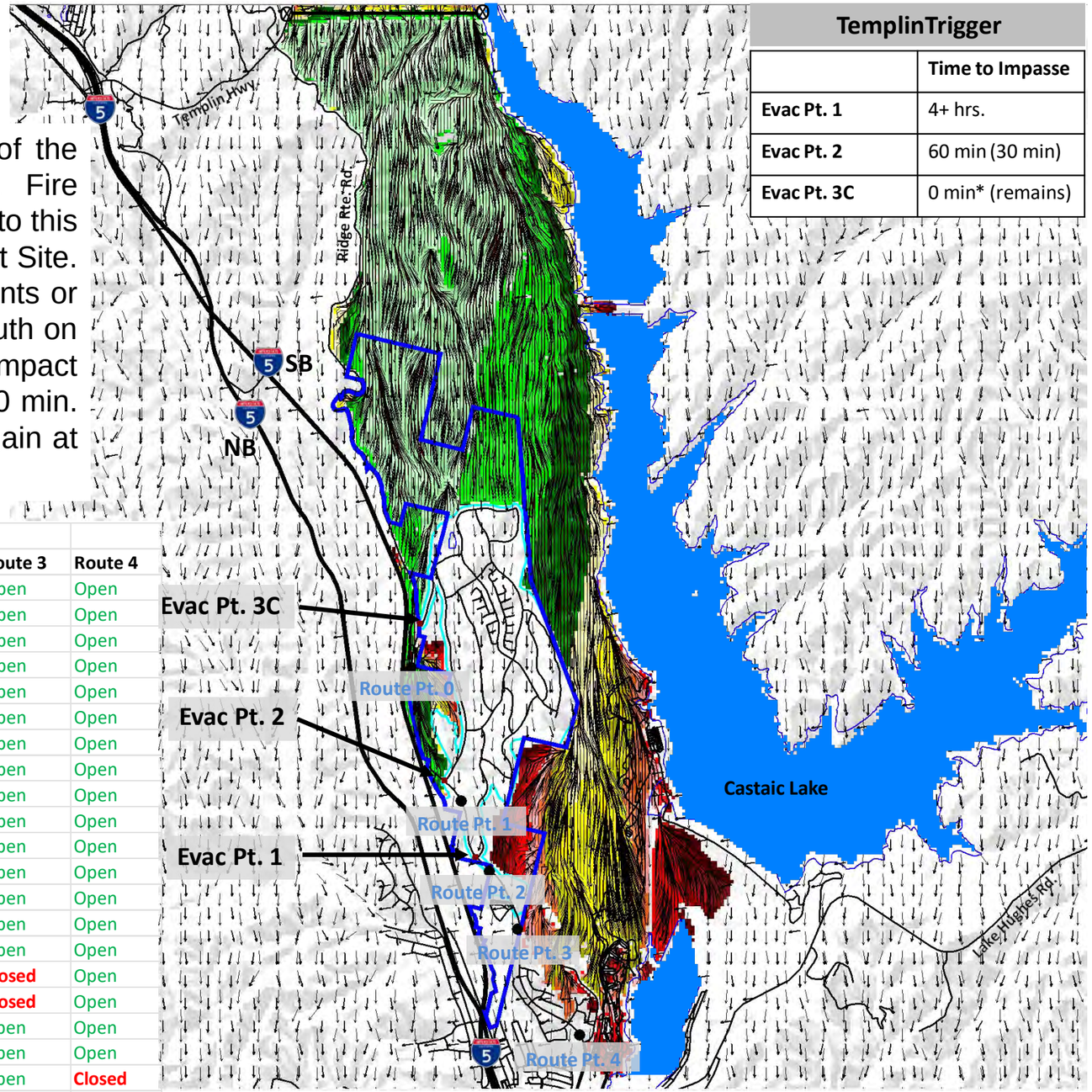
TemplinTrigger

	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (30 min)
Evac Pt. 3C	0 min* (remains)

Templin Highway and Ridge Route Road Trigger Point
Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site at Templin Highway. Wind is from the North at 70 mph. Fire impact the Project Site in less than 10 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours and again at five hours.

Templin at 70 mph	Parital Creek Avoidance	Evacuation to the South									
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	**0:15**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	**0:30**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	**0:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	**1:00**	Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	**1:15**	Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	**1:30**	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open	Open
105	**1:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
120	**2:00**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
135	**2:15**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
150	**2:30**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
165	**2:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
180	**3:00**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
195	**3:15**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
210	**3:30**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
225	**3:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
240	**4:00**	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Closed	Open
255	**4:15**	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Closed	Open
270	**4:30**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
285	**4:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
300	**5:00**	Open	Open	n/a	n/a	Closed	Open	Open	Closed	Open	Closed
315	**5:15**	Open	Open	n/a	n/a	Closed	Open	Open	Closed	Open	Closed
330	**5:30**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
345	**5:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
360	**6:00**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
375	**6:15**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
390	**6:30**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
405	**6:45**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
420	**7:00**	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open



TemplinTrigger	
	Time to Impasse
Evac Pt. 1	4+ hrs.
Evac Pt. 2	60 min (30 min)
Evac Pt. 3C	0 min* (remains)

Inputs: SURFACE

Description		Dry Climate Fuels - NorthLake

Fuel/Vegetation, Surface/Understory

Fuel Model		gr1, gr2, gs1, gs2, sh1, sh2, tu5, S

Fuel Moisture

1-h Fuel Moisture	%	3
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	5
Live Herbaceous Fuel Moisture	%	30
Live Woody Fuel Moisture	%	50

Weather

20-ft Wind Speed	mi/h	0, 25, 45, 65, 80
Wind Adjustment Factor		0.5
Wind Direction (from north)	deg	45

Terrain

Slope Steepness	%	100
Site Aspect	deg	45

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].

Fire spread is in the HEADING direction only [SURFACE].

Wind is in specified directions [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Fire Rate of Spread (ft/min) [SURFACE]

Surface Fireline Intensity (kW/m) [SURFACE]

Surface Fire Flame Length (ft) [SURFACE]

Flame Residence Time (min) [SURFACE]

Total Dead Fuel Load (ton/ac) [SURFACE]

(continued on next page)

Input Worksheet (continued)

Notes

Fuel model parameters

Fuel Model Code	Fuel Model Number	Climate	Fuel load (t/ac) 1-hr	10-hr	100-hr	Live herb	Live woody	Fuel model type[a]	SAV ratio (1/ft)[b] Dead 1-hr	Live herb	Live woody	Fuel bed depth (ft)	Dead fuel extinction moisture (percent)	Heat content BTU/lb[c]	Fuel Model Code	Dead Component Calculation 100% Transfer Dead	Herb	Dead load	Total Load	Percentage Component
GR1	101	Dry	0.10	0.00	0.00	0.30	0.00	dynamic	2200	2000	9999	0.4	15	8000	GR1	0.10	0.30	0.19	0.40	48%
GR2	102	Dry	0.10	0.00	0.00	1.00	0.00	dynamic	2000	1800	9999	1.0	15	8000	GR2	0.10	1.00	1.10	1.10	100%
GS1	121	Dry	0.20	0.00	0.00	0.50	0.65	dynamic	2000	1800	1800	0.9	15	8000	GS1	0.20	0.50	0.45	1.35	33%
GS2	122	Dry	0.50	0.50	0.00	0.60	1.00	dynamic	2000	1800	1800	1.5	15	8000	GS2	1.00	0.60	1.36	2.60	52%
SH1	141	Dry	0.25	0.25	0.00	0.15	1.30	dynamic	2000	1800	1600	1.0	15	8000	SH1	0.50	0.15	0.52	1.95	27%
SH2	142	Dry	1.35	2.40	0.75	0.00	3.85	static	2000	9999	1600	1.0	15	8000	SH2	4.50	no transfer	4.50	8.35	54%
TU5	165	Dry	4.00	4.00	3.00	0.00	3.00	static	1500	9999	750	1.0	25	8000	TU5	11.00	no transfer	11.00	14.00	79%
SCAL14	N/A	N/A	3.00	4.50	1.05	1.45	5.00	static	350	1500	250	3.0	15	9211	SCAL14	8.55	no transfer	8.55	15.00	57%
SCAL15	N/A	N/A	2.00	3.00	1.00	0.50	2.00	static	640	220	640	3.0	13	10000	SCAL15	6.00	no transfer	6.00	8.50	71%
SCAL17	N/A	N/A	1.30	1.00	1.00	2.00	2.00	static	640	2200	640	4.0	20	8000	SCAL17	3.30	no transfer	3.30	7.30	45%
SCAL18	N/A	N/A	5.50	0.80	0.10	0.75	2.50	static	640	1500	640	3.0	25	9200	SCAL18	6.40	no transfer	6.40	9.65	66%
SH5	145	Dry	3.60	2.10	0.00	0.00	2.90	static	750	9999	1600	6.0	15	8000	SH5	5.70	no transfer	5.70	8.60	66%
SH7	147	Dry	3.50	5.30	2.20	0.00	3.40	static	750	9999	1600	6.0	15	8000	SH7	11.00	no transfer	11.00	14.40	76%
SCAL16	N/A	N/A	2.25	4.80	1.80	3.00	2.85	static	500	1500	500	6.0	15	8000	SCAL16	8.85	no transfer	8.85	14.70	60%
Reference Only																				
Model 4	4	N/A	5.01	4.01	2.00	0.00	5.01	static	2000	1500	1500	6.0	20	8000	Model 4	11.02	no transfer	11.02	16.03	69%
Model 6	6	N/A	1.50	2.50	2.00	0.00	0.00	static	1750	1500	1500	2.5	25	8000	Model 6	6.00	no transfer	6.00	6.00	100%

[a] Fuel model type does not apply to fuel models without live herbaceous load.
[b] The value 9999 was assigned in cases where there is no load in a particular fuel class or category
[c] The same heat content value was applied to both live and dead fuel categories.
Note: Dynamic fuels calculated at 100% herbaceous live fuel load transfer due to extreme low fuel moisture in the worse case scenario

Dry Climate Fuels - NorthLake

Head Fire

Surface Fire Rate of Spread (ft/min)

Fuel Model	20-ft Wind Speed mi/h				
	0	25	45	65	80
gr1	30.0	30.0	30.0	30.0	30.0
gr2	108.9	268.7	268.7	268.7	268.7
gs1	54.0	181.3	203.3	203.3	203.3
gs2	75.1	249.7	486.6	565.2	565.2
sh1	31.7	102.1	120.2	120.2	120.2
sh2	23.9	69.6	127.4	196.4	254.2
tu5	29.1	71.6	113.8	159.5	195.5
SCAL14	45.4	117.9	170.9	222.3	260.1
SCAL15	52.8	151.3	236.8	325.0	392.3
SCAL17	84.7	273.9	511.7	795.3	907.0
SCAL18	81.2	225.6	329.8	430.4	504.3
sh5	150.6	477.4	807.9	1168.3	1453.3
sh7	106.0	316.5	526.9	755.4	935.6
SCAL16	78.8	231.0	367.3	509.2	618.3

Dry Climate Fuels - NorthLake

Head Fire

Surface Fireline Intensity (kW/m)

Fuel Model	20-ft Wind Speed mi/h				
	0	25	45	65	80
gr1	151	151	151	151	151
gr2	1636	4037	4037	4037	4037
gs1	1095	3675	4122	4122	4122
gs2	2483	8262	16100	18700	18700
sh1	747	2412	2838	2838	2838
sh2	2045	5955	10895	16798	21733
tu5	5120	12593	20022	28070	34406
SCAL14	10036	26051	37756	49107	57462
SCAL15	5289	15161	23740	32575	39321
SCAL17	4275	13831	25840	40159	45799
SCAL18	19164	53264	77865	101620	119060
sh5	16779	53199	90025	130182	161930
sh7	15952	47643	79330	113730	140854
SCAL16	9854	28906	45959	63713	77359

Dry Climate Fuels - NorthLake

Head Fire

Surface Fire Flame Length (ft)

Fuel Model	20-ft Wind Speed mi/h				
	0	25	45	65	80
gr1	2.6	2.6	2.6	2.6	2.6
gr2	7.6	11.6	11.6	11.6	11.6
gs1	6.4	11.1	11.7	11.7	11.7
gs2	9.3	16.1	21.9	23.4	23.4
sh1	5.3	9.1	9.8	9.8	9.8
sh2	8.5	13.8	18.3	22.3	25.1
tu5	12.9	19.5	24.2	28.3	31.0
SCAL14	17.6	27.3	32.4	36.6	39.3
SCAL15	13.1	21.3	26.2	30.3	33.0
SCAL17	11.9	20.4	27.2	33.3	35.4
SCAL18	23.7	37.9	45.2	51.1	54.9
sh5	22.3	37.9	48.3	57.2	63.3
sh7	21.8	36.0	45.6	53.8	59.4
SCAL16	17.5	28.6	35.5	41.2	45.1

Dry Climate Fuels - NorthLake

Head Fire

Flame Residence Time (min)

Fuel Model	20-ft Wind Speed mi/h				
	0	25	45	65	80
gr1	0.19	0.19	0.19	0.19	0.19
gr2	0.21	0.21	0.21	0.21	0.21
gs1	0.21	0.21	0.21	0.21	0.21
gs2	0.21	0.21	0.21	0.21	0.21
sh1	0.23	0.23	0.23	0.23	0.23
sh2	0.23	0.23	0.23	0.23	0.23
tu5	0.31	0.31	0.31	0.31	0.31
SCAL14	0.48	0.48	0.48	0.48	0.48
SCAL15	0.38	0.38	0.38	0.38	0.38
SCAL17	0.23	0.23	0.23	0.23	0.23
SCAL18	0.49	0.49	0.49	0.49	0.49
sh5	0.31	0.31	0.31	0.31	0.31
sh7	0.31	0.31	0.31	0.31	0.31
SCAL16	0.36	0.36	0.36	0.36	0.36

Dry Climate Fuels - NorthLake

Head Fire

Total Dead Fuel Load (ton/ac)

Fuel Model	20-ft Wind Speed mi/h				
	0	25	45	65	80
gr1	0.400	0.400	0.400	0.400	0.400
gr2	1.100	1.100	1.100	1.100	1.100
gs1	0.700	0.700	0.700	0.700	0.700
gs2	1.600	1.600	1.600	1.600	1.600
sh1	0.650	0.650	0.650	0.650	0.650
sh2	4.500	4.500	4.500	4.500	4.500
tu5	11.000	11.000	11.000	11.000	11.000
SCAL14	8.550	8.550	8.550	8.550	8.550
SCAL15	6.000	6.000	6.000	6.000	6.000
SCAL17	3.300	3.300	3.300	3.300	3.300
SCAL18	6.400	6.400	6.400	6.400	6.400
sh5	5.700	5.700	5.700	5.700	5.700
sh7	11.000	11.000	11.000	11.000	11.000
SCAL16	8.850	8.850	8.850	8.850	8.850

Discrete Variable Codes Used
Dry Climate Fuels - NorthLake

Fuel Model		
101	gr1	Short, sparse, dry climate grass (D)
102	gr2	Low load, dry climate grass (D)
121	gs1	Low load, dry climate grass-shrub (D)
122	gs2	Moderate load, dry climate grass-shrub (D)
141	sh1	Low load, dry climate shrub (D)
142	sh2	Moderate load, dry climate shrub (S)
165	tu5	Very high load, dry climate timber-shrub (S)
14	SCAL14	Manzanita
15	SCAL15	Chamise 1
17	SCAL17	Chamise 2
18	SCAL18	Sage / Buckwheat
145	sh5	High load, dry climate shrub (S)
147	sh7	Very high load, dry climate shrub (S)
16	SCAL16	North Slope Ceanothus

Inputs: SURFACE

Description		Climate Fuels - NorthLake Slope

Fuel/Vegetation, Surface/Understory

Fuel Model		SCAL18

Fuel Moisture

1-h Fuel Moisture	%	3
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	5
Live Herbaceous Fuel Moisture	%	30
Live Woody Fuel Moisture	%	50

Weather

20-ft Wind Speed	mi/h	0, 25, 45, 65, 80
Wind Adjustment Factor		0.5
Wind Direction (from north)	deg	45

Terrain

Slope Steepness	%	0, 10, 20, 30, 40, 50, 60, 70, 80, 9
Site Aspect	deg	45

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].

Fire spread is in the HEADING direction only [SURFACE].

Wind is in specified directions [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Fire Rate of Spread (ft/min) [SURFACE]

Surface Fireline Intensity (kW/m) [SURFACE]

Surface Fire Flame Length (ft) [SURFACE]

Flame Residence Time (min) [SURFACE]

(continued on next page)

Input Worksheet (continued)

Notes

Climate Fuels - NorthLake Slope

Head Fire

Surface Fire Rate of Spread (ft/min)

Slope	20-ft Wind Speed mi/h				
%	0	25	45	65	80
0	3.0	147.4	251.6	352.2	426.1
10	3.7	148.2	252.4	353.0	426.9
20	6.1	150.5	254.7	355.3	429.2
30	10.0	154.4	258.6	359.3	433.1
40	15.5	159.9	264.1	364.7	438.6
50	22.5	166.9	271.2	371.8	445.6
60	31.1	175.6	279.8	380.4	454.2
70	41.3	185.7	289.9	390.5	464.4
80	53.0	197.5	301.7	402.3	476.1
90	66.3	210.8	315.0	415.6	489.4
100	81.2	225.6	329.8	430.4	504.3

Climate Fuels - NorthLake Slope

Head Fire

Surface Fireline Intensity (kW/m)

Slope	20-ft Wind Speed mi/h				
%	0	25	45	65	80
0	697	34798	59399	83153	100594
10	882	34983	59583	83338	100778
20	1436	35537	60137	83892	101332
30	2359	36460	61061	84815	102255
40	3652	37753	62353	86108	103548
50	5314	39415	64015	87770	105210
60	7345	41446	66047	89801	107241
70	9746	43846	68447	92202	109642
80	12516	46616	71217	94972	112412
90	15655	49756	74357	98111	115551
100	19164	53264	77865	101620	119060

Climate Fuels - NorthLake Slope

Head Fire

Surface Fire Flame Length (ft)

Slope	20-ft Wind Speed mi/h				
%	0	25	45	65	80
0	5.2	31.2	39.9	46.6	50.8
10	5.8	31.3	40.0	46.6	50.9
20	7.2	31.5	40.1	46.8	51.0
30	9.0	31.9	40.4	47.0	51.2
40	11.1	32.4	40.8	47.3	51.5
50	13.1	33.0	41.3	47.7	51.9
60	15.3	33.8	41.9	48.3	52.4
70	17.4	34.7	42.6	48.8	52.9
80	19.5	35.7	43.4	49.5	53.5
90	21.6	36.8	44.2	50.3	54.2
100	23.7	37.9	45.2	51.1	54.9

Climate Fuels - NorthLake Slope

Head Fire

Flame Residence Time (min)

Slope	20-ft Wind Speed mi/h				
%	0	25	45	65	80
0	0.49	0.49	0.49	0.49	0.49
10	0.49	0.49	0.49	0.49	0.49
20	0.49	0.49	0.49	0.49	0.49
30	0.49	0.49	0.49	0.49	0.49
40	0.49	0.49	0.49	0.49	0.49
50	0.49	0.49	0.49	0.49	0.49
60	0.49	0.49	0.49	0.49	0.49
70	0.49	0.49	0.49	0.49	0.49
80	0.49	0.49	0.49	0.49	0.49
90	0.49	0.49	0.49	0.49	0.49
100	0.49	0.49	0.49	0.49	0.49

Discrete Variable Codes Used
Climate Fuels - NorthLake Slope

Fuel Model

18	SCAL18	Sage / Buckwheat

Inputs: SURFACE

Description		Dry Climate Fuels - NorthLake Chaparral

Fuel/Vegetation, Surface/Understory

Chaparral Fuel Type		Chamise, MixedBrush
Chaparral Fuel Bed Depth	ft	10
Chaparral Dead Load Fraction	%	64

Fuel Moisture

1-h Fuel Moisture	%	3
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	5
Live Herbaceous Fuel Moisture	%	30
Live Woody Fuel Moisture	%	50

Weather

20-ft Wind Speed	mi/h	0, 25, 45, 65, 80
Wind Adjustment Factor		0.5
Wind Direction (from north)	deg	45

Terrain

Slope Steepness	%	100
Site Aspect	deg	45

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].

A special case fuel model is used: chaparral (Rothermel and Philpot 1973) [SURFACE].

Fire spread is in the HEADING direction only [SURFACE].

Wind is in specified directions [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Fire Rate of Spread (ft/min) [SURFACE]

Surface Fireline Intensity (kW/m) [SURFACE]

Surface Fire Flame Length (ft) [SURFACE]

Surface Fire Dir of Max Spread (from north) (deg) [SURFACE]

Flame Residence Time (min) [SURFACE]

(continued on next page)

Input Worksheet (continued)

Chaparral Total Fuel Load (ton/ac) [SURFACE]

Chaparral Total Dead Fuel Load (ton/ac) [SURFACE]

Chaparral Total Live Fuel Load (ton/ac) [SURFACE]

Notes

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Surface Fire Rate of Spread (ft/min)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	46.3	66.2
25	155.3	194.5
45	163.9	265.0
65	163.9	327.6
80	163.9	371.3

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Surface Fireline Intensity (kW/m)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	4089	18438
25	13705	54223
45	14470	73858
65	14470	91302
80	14470	103478

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Surface Fire Flame Length (ft)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	11.7	23.3
25	20.3	38.3
45	20.8	44.1
65	20.8	48.6
80	20.8	51.5

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Surface Fire Dir of Max Spread (from north) (deg)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	225	225
25	225	225
45	225	225
65	225	225
80	225	225

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Flame Residence Time (min)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	0.73	0.73
25	0.73	0.73
45	0.73	0.73
65	0.73	0.73
80	0.73	0.73

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Chaparral Total Fuel Load (ton/ac)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	19.807	37.456
25	19.807	37.456
45	19.807	37.456
65	19.807	37.456
80	19.807	37.456

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Chaparral Total Dead Fuel Load (ton/ac)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	12.676	23.972
25	12.676	23.972
45	12.676	23.972
65	12.676	23.972
80	12.676	23.972

Dry Climate Fuels - NorthLake Chaparral

Head Fire

Chaparral Total Live Fuel Load (ton/ac)

20-ft Wind Speed	Chaparral Fuel Type	
mi/h	Chamise	MixedBrush
0	7.130	13.484
25	7.130	13.484
45	7.130	13.484
65	7.130	13.484
80	7.130	13.484

Discrete Variable Codes Used
Dry Climate Fuels - NorthLake Chaparral

Chaparral Fuel Type

`Chamise`	Chamise
`MixedBrush`	MixedBrush

APPENDIX D-2

NORTHLAKE SPECIFIC PLAN WILDLAND FIRE EVACUATION SCENARIOS – EVACUATION TIME ESTIMATES MEMORANDUM

Stantec

Memo

To:	Damon Mamalakis Armbruster Goldsmith & Delve LLP	From:	Maria Morris and Daryl Zerfass Stantec
Project/File:	2042648800	Date:	August 9, 2024

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

This memorandum summarizes evacuation time estimates based on various wildland fire evacuation scenarios for the Northlake Specific Plan Development (Project). The Project is located east of the Interstate 5 (I-5) freeway and north of Lake Hughes Road in unincorporated Los Angeles County. The Project location is illustrated in **Figure 1**.

Firesafe Planning Solutions prepared a Wildland Fire Risk Report[1] for the Project. The Wildland Fire Risk Report provides an assessment of wildland fire risks to assess wildland fire intensity approaching the Project site. Information from the Wildland Fire Risk Report, such as time estimates for when a simulated wildland fire would reach certain locations within the Project site, was used to estimate the approximate time needed to evacuate the Project site under various wildland fire scenarios.

Assumptions

The following assumptions related to land use, vehicles/traffic volumes, roadway network, on-site evacuation routes, and Wildland Risk Report Alternatives, were used to estimate evacuation times.

The focus of this analysis is on Ridge Route Road within the Specific Plan area and south to Lake Hughes Road where Ridge Route Road enters the existing Castaic community. Conditions on Lake Hughes Road and on Ridge Route Road south of Lake Hughes Road can affect the overall capacity of vehicles passing through the Ridge Route Road/Lake Hughes Road intersection, For this analysis of the Specific Plan area, it is assumed that these downstream conditions are being actively managed by County emergency management personnel and that sufficient capacity is available to receive and/or stage the evacuating residents.

Land use

Evacuation times are estimated for three land use scenarios:

- Previously Approved Project
- Creek Avoidance Alternative (CAA)
- Partial Creek Avoidance Alternative (PCAA)

The analysis is based on a worst-case scenario in which all residents of dwelling units under evacuation are assumed to be at home and would attempt to evacuate using all available vehicles for each household. The

[1] Wildland Fire Risk Report Northlake Project, Firesafe Planning Solutions, April 2023.

analysis also considers the existing residential neighborhoods just south of the Project (i.e., Northlake Hills and Wildwood), which also rely on Ridge Route Road for evacuation.

Table 1 summarizes the total residential units that would be constructed with each alternative. The number of dwelling units that would evacuate under a fire varies by scenario and is discussed later in this report.

Table 1 Northlake Specific Plan Residential Units by Alternative

	Previously Approved Project	CAA	PCAA
Residential	3,150 DU (including 321 affordable housing units)	1,815 DU (including 165 affordable housing units)	3,150 DU (including 315 affordable housing units and 6 live-work market rate units)
DU = dwelling units; CAA = Creek Avoidance Alternative, PCAA = Partial Creek Avoidance Alternative			

Vehicles/Traffic Volume

The number of residential units and the average vehicle ownership per household in the Castaic community was used to estimate the potential number of Northlake vehicles that would need to be evacuated during a wildland fire event. According to the 2021 American Community Survey (shown in **Table 2**), approximately 42% of Castaic households own two vehicles, 20% own 3 vehicles, and 18% own 4 or more vehicles. In total, households in the Castaic community own an average of 2.34 vehicles per household.

Table 2 Vehicles Per Household in Castaic Community – American Community Survey

Number of Vehicles Available in Household	Households	% of Total
0	148	3%
1	953	17%
2	2,401	42%
3	1,144	20%
4+	1,010	18%
Total households in Castaic	5,656	100%
Total with 2 or more	4,555	80%
Weighted average per household	2.34	
Source: 2021 American Community Survey		

The Appendix B of the Wildland Fire Risk Report illustrates fire behavior modeling under 30 scenarios. With each scenario, the number of people at risk determines the number of dwelling units that would be a priority to evacuate (hereby referred to as priority area), which is estimated based on the area of impact as determined in the Wildland Fire Risk Report and is summarized in **Table 3.** The priority area is shown as a dark gray shaded area in the Wildland Fire Risk Report illustrations. In some instances, the entire Project area is in the priority area. The boundaries of the shaded area in the Wildland Fire Risk Report illustrations were overlayed on the Project's tract maps and the number of dwelling units within the dark gray shaded area was estimated. After the priority area has evacuated, the remainder of the Project area would

evacuate. **Table 4** summarizes the number of vehicles evacuating, which is based on a worst-case assumption of residents using all available vehicles to evacuate.

Table 3 Estimated Number of Evacuating Dwelling Units in the Priority Area per Alternative

Scenario		Previously Approved Project	CAA	PCAA
1	Route Fire Sim	1,108	651	927
2	SSWat40Spot	1,286	483	1,370
3	SSWat40Line	1,383	1,134	1,485
4	Sat40Line	0	0	0
5	FreewaySpotsat40	822	910	1,132
6	LakeSpotsat40	898	1,650	1,056
7	Neat70Line	570	826	0
8	NNEat70Line	842	767	963
9	Nat70Line	1,687	940	1,702
10	Templin Trigger	3,150	1,815	3,150

Table 4 Estimated Number of Evacuating Vehicles from the Priority Area per Alternative

Scenario		Previously Approved Project	CAA	PCAA
1	Route Fire Sim	2,593	1,524	2,169
2	SSWat40Spot	3,009	1,129	3,206
3	SSWat40Line	3,236	2,653	3,475
4	Sat40Line	0	0	0
5	FreewaySpotsat40	1,924	2,129	2,649
6	LakeSpotsat40	2,101	3,861	2,471
7	NEat70Line	1,334	1,932	0
8	NNEat70Line	1,970	1,795	2,253
9	Nat70Line	3,948	2,198	3,983
10	Templin Trigger	7,371	4,247	7,371
Dwelling Units x average vehicles per household (2.34) = total vehicles				

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

Roadway Network

An illustration of the on-site roadway network for the Previously Approved Project, CAA, and PCAA is shown in **Figure 2**. **Table 5** provides a description of the main on-site roadways that would be used during a wildland fire evacuation and the roadways' capacities. **Figure 3** illustrates the Approved Project's on-site roadway classifications for reference.

Table 5 Roadway Network and Roadway Capacity Summary

Name	Roadway	Classification/Number of Lanes[1]	Capacity per Direction (Free Flow Conditions[2])	Capacity per Direction (Congested Conditions[3])
Ridge Route Point 0	Existing Ridge Route Road from north of Northlake Boulevard to northerly project limits	Secondary Highway 2-lanes (1 in each direction)	VPHPL = 1,600 Total VPH = 1,600	VPHPL = 500 Total VPH = 500
Ridge Route Point 1	Ridge Route Road between Northlake Boulevard and "B" Street	Secondary Highway 4-lanes (2 in each direction)	VPHPL = 1,600 Total VPH = 3,200	VPHPL = 500 Total VPH = 1,000
Ridge Route Point 2	Ridge Route Road between "B" Street and existing school site	Secondary Highway 4-lanes (2 in each direction)	VPHPL = 1,600 Total VPH = 3,200	VPHPL = 500 Total VPH = 1,000
Ridge Route Point 3	Existing Ridge Route Road between existing school site to Pine Crest Place	Secondary Highway 4-lanes (2 in each direction)	VPHPL = 1,600 Total VPH = 3,200	VPHPL = 500 Total VPH = 1,000
Ridge Route Point 4	Existing Ridge Route Road between Pine Crest Place to Castaic Lake Drive	Secondary Highway 4-lanes (2 in each direction)	VPHPL = 1,600 Total VPH = 3,200	VPHPL = 500 Total VPH = 1,000
Evacuation Point 1	"B" Street	Local Collector 2-lanes (1 in each direction)	VPHPL = 1,600 Total VPH = 1,600	VPHPL = 500 Total VPH = 500
Evacuation Point 2	Northlake Boulevard	Modified Industrial Collector 4-lanes (2 in each direction)	VPHPL = 1,600 Total VPH = 3,200	VPHPL = 500 Total VPH = 1,000
Evacuation Point 3	"A" Street	Local Collector 2-lanes (1 in each direction)	VPHPL = 1,600 Total VPH = 1,600	VPHPL = 500 Total VPH = 500

VPHPL = vehicles per hour per lane; VPH = vehicles per hour

[1] Northlake Design Guidebook, April 2018.

[2] The County of Los Angeles typically uses a VPHPL of 1,600 in ideal conditions.

[3] 500 VPHPL under congested conditions would equate to vehicles travelling at 2-3 miles per hour on average.

As shown in **Table 5**, a conservative roadway capacity estimate of 500 vehicles per hour per lane (VPHPL) is used in this analysis to represent extreme congested conditions under a worst-case evacuation scenario. 500 VPHPL is based on the following parameters:

- 30-foot average headways
- average speeds between 2-3 miles per hour

On-Site Evacuation Routes

The Wildland Fire Risk Report identifies the following evacuation points within the on-site roadway network (see **Figure 4** for illustration):

- Evacuation Point 1: Ridge Route Road at B Street intersection.
- Evacuation Point 2: Ridge Route Road at Northlake Boulevard intersection.
- Evacuation Point 3: Existing Ridge Route Road at northernmost emergency access point/local collector road (since the specific location of this intersection varies between the Previously. Approved Specific Plan, CAA, and PCAA, the intersection is referred to as 3A, 3B, and 3C, respectively)

Traffic from the three evacuation points would proceed south along Ridge Route Road towards the Lake Hughes Road intersection. For a worst-case condition, this analysis assumes that no vehicles would be evacuated to the north towards Templin Highway.

Wildland Fire Risk Report Alternatives

The Wildland Fire Risk Report shows the expected path of fire scenarios across the landscape (wildland) and provides rough time limits for the arrival of the fire front at key locations surrounding the Project site. **Table 6** summarizes data from the Wildland Fire Risk Report for 30 unique scenarios showing the estimated allowable time limits for when locations are viable. The allowable time limit is based on the time an evacuation point closes (i.e., becomes impassable), and in some instances reopens, as shown in Appendix B of the Wildland Fire Risk Report. The allowable time limits are used to estimate how many vehicles can pass through various evacuation points and onto Ridge Route Road to exit the Project site. Detailed timetables are located in Appendix B of the Wildland Fire Risk Report and in the attached worksheets.

The Wildland Risk Report reports that Scenario 4 would not result in any impacts to the three evacuation points. All other scenarios would result in an unusable evacuation point within a certain amount of time.

Methodology

The estimated evacuation time is calculated based on factors including the population of the Project area, the average number of vehicles owned by each household, the relative location of households in relation to the roadway network, and the available roadway capacity. As described above, Appendix B of the Wildland Fire Risk Report illustrates fire behavior modeling for 30 scenarios and identifies priority areas required to evacuate under that particular scenario. The procedure used for calculating evacuation times is provided in the attached worksheets.

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

Table 6 Allowable Time Limits from Wildland Fire Risk Report

Scenario	Evac Pt 1	Evac Pt 2	Evac Pt 3A	Evac Pt 3B	Evac Pt 3C
1. Route Fire Sim	Prev. Approved Plan – No time constraints CAA – Closes in 90 min* (reopens after 60 min) PCAA – No time constraints	Prev. Approved Plan – 60 min (reopens after 30 min) CAA – 60 min (reopens after 30 min) PCAA – 60 min (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 60 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 60 min* (remains closed)
2. SSWat40Spot	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 60 min (reopens after 30 min) CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 60 min* (remains closed) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 60 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 60 min* (remains closed)
3. SSWat40Line	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – 60 min* (remains closed) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 60 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 60 min* (remains closed)
4. Sat40Line	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – No time constraints PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – No time constraints PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – No time constraints
5. FreewaySpotsat 40	Prev. Approved Plan –30 min (reopens after 90 min) CAA – 30 min (reopens after 90 min) PCAA – 30 min (reopens after 90 min)	Prev. Approved Plan –30 min (reopens after 90 min) CAA – 30 min (reopens after 60 min) PCAA – 30 min (reopens after 90 min)	Prev. Approved Plan – 30 min* (reopens after 90 min) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 30 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 30 min* (reopens after 90 min)
6. LakeSpotsat40	Prev. Approved Plan –60 min* (reopens after 30 min) CAA – 60 min* (reopens after 30 min) PCAA – 60 min* (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – 90 min*(reopens after 30 min) PCAA – No time constraints	Prev. Approved Plan – No time constraints CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 120 min* (remains closed) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – No time constraints
7. NEat70Line	Prev. Approved Plan – No time constraints	Prev. Approved Plan – No time constraints	Prev. Approved Plan – 0 min (closed for the first 4.75 hours of the fire)	Prev. Approved Plan – N/A CAA – 0 min (closed for the first 90 min of the fire)	Prev. Approved Plan – N/A CAA – N/A

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

	CAA – No time constraints PCAA – No time constraints	CAA – No time constraints PCAA – No time constraints	CAA – N/A PCAA – N/A	PCAA – N/A	PCAA – 0 min (remains closed for the entire duration of the fire)
8. NNEat70Line	Prev. Approved Plan – No time constraint for 4+ hours* (reopens after 30 min) CAA – No time constraint for 4+ hours* (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – 90 min (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan – 0 min* (closed for the first 4 hours of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (closed for the first 4 hours of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 0 min* (remains closed for the entire duration of the fire)
9. Nat70Line	Prev. Approved Plan – No time constraint for 4+ hours* (reopens after 30 min) CAA – No time constraint for 4+ hours* (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan –60 min (reopens after 30 min) CAA – 60 min (reopens after 30 min) PCAA – 60 min (reopens after 30 min)	Prev. Approved Plan – 0 min* (remains closed for the entire duration of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (remains closed for the entire duration of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – N/A PCAA – 0 min* (remains closed for the entire duration of the fire)
10. Templin Trigger	Prev. Approved Plan – No time constraint for 4+ hours* (reopens after 30 min) CAA – No time constraint for 4+ hours* (reopens after 30 min) PCAA – No time constraint for 4+ hours* (reopens after 30 min)	Prev. Approved Plan – No time constraints CAA – 60 min (reopens after 45 min) PCAA – 60 min (reopens after 45 min)	Prev. Approved Plan – 0 min (closed for the first 6 min of the fire) CAA – N/A PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (remains closed for the entire duration of the fire) PCAA – N/A	Prev. Approved Plan – N/A CAA – 0 min* (remains closed for the entire duration of the fire) PCAA – N/A

* Evac Point is not Limited at this point but the travel path for ingress/egress is Limited, such as closures on Ridge Route Road.

Green highlight indicates that the exit point will be viable for four hours or more before it is Limited by the fire. Time in Parentheses () is the time period for this the exit is limited.

N/A = not applicable

Source: Wildland Fire Risk Report for the NorthLake Project, 2023

With each alternative, Evacuation Point 1 would have one egress lane (500 vehicles per hour under congested conditions), Evacuation Point 2 would have two egress lanes (1,000 vehicles per hour under congested conditions), and Evacuation Point 3 would have one egress lane (500 vehicles per hour under congested conditions). The available capacity for each evacuation point is calculated in 15-minute intervals and an incremental assignment of Project vehicles is applied at each evacuation point until all vehicle demand has been satisfied. The total of the 15-minute intervals is the estimated evacuation time.

Regarding Ridge Route Road, the vehicle arrival rate at key points along Ridge Route Road is also calculated in 15-minute intervals. **Figure 4** shows the four key points on Ridge Route Road that a vehicle would need to pass through to exit the Project site. Ridge Route Point 1 is located just south of Northlake Boulevard and only vehicles from Evacuation Points 2 and 3 would pass through this point. Ridge Route Point 4 would have the greatest number of vehicles passing through as all vehicles from Evacuation Points 1, 2, and 3, as well as the existing Northlake Hills and Wildwood community would pass through this point.

Vehicles will utilize an evacuation point based on the location of the dwelling unit and the relative distance to the evacuation point. For example, units at the northern end of the Project would most likely use Evacuation Point 3, whereas the units located in the center of the Project would likely use Evacuation Points 1 or 2 to get to Ridge Route. Refinements to vehicle assignment consider the available roadway capacity for each scenario.

In certain scenarios, the Wildland Risk Fire Report indicates where certain evacuation points become unusable after a duration of time (i.e., 15 min, 30 min, 60 min, 90 min, 2 hours, etc.), and when the points reopen. In those instances, vehicles are rerouted to the next feasible evacuation point with available roadway capacity. For example, if the northerly Evacuation Point 3 is impassable after 60 minutes, all vehicles will reroute to use Evacuation Point 2. In general, when an evacuation point becomes impassable, the evacuation point would reopen once the fire passes that point.

There are instances where Ridge Route Road would be impassable and evacuation would close for a period. The Wildland Risk Fire Report describes that residents would “shelter in place” if necessary and the community with its built-in fire protection (defensible space, fuel modification, hardening of the structures, and required maintenance), placement of the structures on the topography, overall orientation to the fuels, wind, and slope, and nested (safe center) configuration would facilitate a “shelter in place” decision. The Wildland Risk Fire Report also states that while “shelter in place” is never a first option, history shows that moving populations once the fire has arrived has increased risk and “shelter in place” should be attempted when safe alternative exists.

Evacuation Estimates

Based on the assumptions and methodology described above, evacuation times were estimated for the 30 scenarios and are summarized in **Table 7**.

For example, the following discussion describes how the evacuation time was calculated for the Route Fire Simulation based on the Partial Creek Avoidance Alternative:

1. The number of dwelling units and vehicles in the priority area are estimated. The PCAA Density Exhibit (Sikand, 2022) is used to identify the total number of units under this alternative, the location of each planning area, and the number of dwelling units in each planning area. Phase 2 land use

was estimated using an average 12.5 units per acre for each planning area. Under the PCAA, a total of 3,150 residential units would be developed.

In Appendix B of the Wildland Risk Fire Report, a dark gray shaded area is shown in the model output summary sheets, which represents the area of people at risk (priority area). The priority area would be first to evacuate their homes. The dark gray shaded area was overlayed on the PCAA Density Exhibit and the number of dwelling units in the priority area is estimated. The number of dwelling units in the priority area is then converted to the number of vehicles that would evacuate. In this scenario, approximately 927 units are in the priority area and approximately 2,169 vehicles would evacuate based on the average vehicle ownership factor for the Castaic area of 2.34 vehicles per household (927 units x 2.34 vehicles/unit = 2,169 vehicles). A full evacuation of the Project site would include 3,150 units and approximately 7,371 vehicles.

2. Next, viable evacuation points are identified based on allowable time limits. With the PCAA Alternative, there are three evacuation points leading onto Ridge Route Road, which is the Project site's primary egress route. For a worst-case analysis, it is assumed that roadway capacity for a single lane under an evacuation is reduced to 125 vehicles per 15 minutes (maximum of 500 VPHPL) due to potential factors such as traffic congestion or vehicles driving at lower speeds due to the environment (e.g., smoke, wind, debris, watching the fire). Allowable time limits for each of the three evacuation points are taken from Appendix B of the Wildland Fire Risk Report, with evacuations beginning approximately 15 minutes after the fire is spotted at a critical location.

   In this scenario, Evacuation Point 1 ("B" Street) is not impacted by the fire and would remain a viable exit route to access Ridge Route Road. As the fire spots over the southbound I-5 at 60 minutes, Evacuation Point 2 (Northlake Boulevard), Evacuation Point 3C ("A" Street), and Ridge Route Point 0 (Ridge Route Road north of Northlake Boulevard) are impacted by the fire and become impassable. In other words, for the first hour vehicles from the priority area can use any of the three evacuation points. When Evacuation Point 2 and Evacuation Point 3C close, vehicles would reroute to Evacuation Point 1 only. When Evacuation Point 2 reopens (approximately 30 minutes after closure), vehicles would reroute to use Evacuation Point 2 and Evacuation Point 1 to access Ridge Route Road until remaining vehicles from the priority area evacuate. Evacuation Point 3C does not reopen in this scenario. The remainder of the Project evacuates after the priority area in the event a mandatory evacuation order is activated for the entire Project site. Methods to reroute vehicles due to closures could be included in an evacuation plan for the Project.

3. Vehicles are distributed to evacuation points. The number of vehicles distributed to an evacuation point is based on the time limitations described above, available roadway capacity, and distance from the residential unit to the evacuation point.

   In this scenario, most of the priority area is adjacent to Northlake Boulevard. More vehicles would use Northlake Boulevard to evacuate as it is a 2-lane lane roadway that could accommodate twice as many vehicles as "B" Street (Evacuation Point 1) and "A" Street (Evacuation Point 3C). Northlake Boulevard could accommodate approximately 250 vehicles per 15 minutes compared to "B" Street and "A" Street, where the one-lane egress could accommodate approximately 125 vehicles per 15 minutes. However, if vehicles from the priority area are leaving at the same time, drivers may make the choice to use an alternate route from Northlake Boulevard. This analysis assumes that vehicles from the most northerly homes in the priority area chose to use Evacuation

Point 3C ("A" Street) because it would have fewer vehicles using that route and would bypass downstream traffic on Northlake Boulevard. Similarly, some vehicles from the middle section of the priority area could choose to use Evacuation Point 1 to bypass traffic originating from the southerly portion of the priority area. An evacuation plan for the community could have emergency personnel directing vehicles to different evacuation points to evenly distribute traffic and prevent a bottleneck on Ridge Route Road at Northlake Boulevard.

As shown in the attached worksheets, the available capacity for each evacuation point is calculated in 15-minute intervals and an incremental assignment of Project vehicles is applied at each evacuation point until all vehicle demand has been satisfied. The total of the 15-minute intervals is the estimated evacuation time. In this instance, it would take approximately 1.75 hours (105 minutes) to evacuate 927 DU (2,169 vehicles) from the priority area of the Project and 4.5 hours (270 minutes) to evacuate the entire Project of 3,150 DU (7,371 vehicles).

Table 7 summarizes the estimated evacuation times (see attached summary table and worksheets for detailed assumptions and calculations) and the number of vehicles estimated to evacuate within the allowable time limits**.**

Table 7 Estimated Evacuation Time Summary

Scenario	Previously Approved Project	CAA	PCAA
1. Route Fire Sim	2 hours to evacuate 1,108 DU (2,593 vehicles) from the priority evacuation area of the Project. 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	1 hour to evacuate 651 DU (1,524 vehicles) from the priority evacuation area of the Project. 3 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	1.75 hours to evacuate 927 DU (2,169 vehicles) from the priority evacuation area of the Project. 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
2. SSWat40Spot	2.25 hours to evacuate 1,286 DU (3,009 vehicles) from the priority evacuation area of the Project. 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	45 minutes to evacuate 483 DU (1,129 vehicles) from the priority evacuation area of the Project. 2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	2 hours to evacuate 1,370 DU 3,206 vehicles) from the priority evacuation area of the Project. 4.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
3. SSWat40Line	2 hours to evacuate 1,383 DU (3,236 vehicles) from the priority evacuation area of the Project. 4.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	1.5 hour to evacuate 1,134 DU (2,653 vehicles) from the priority evacuation area of the Project. 2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	2.25 hours to evacuate 1,485 DU (3,475 vehicles) from the priority evacuation area of the Project. 4.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
4. Sat40Line	No priority area, total evacuation shown for information purposes:	No priority area, total evacuation shown for information purposes:	No priority area, total evacuation shown for information purposes:

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

	3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	2 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
5. FreewaySpotsat40	2.5 hours to evacuate 822 DU (1,924 vehicles) from the priority evacuation area of the Project. 5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	3.25 hours to evacuate 910 DU (2,129 vehicles) from the priority evacuation area of the Project. 4.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	2.75 hours to evacuate 1,132 DU (2,649 vehicles) from the priority evacuation area of the Project. 5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
6. LakeSpotat40	1.25 hours to evacuate 898 DU (2,101 vehicles) from the priority evacuation area of the Project. 3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	2.5 hours to evacuate 1,650 DU (3,861 vehicles) from the priority evacuation area of the Project. 2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	1.5 hours to evacuate 1,056 DU (2,471 vehicles) from the priority evacuation area of the Project. 3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
7. Neat70Line	1 hour to evacuate 570 DU (1,334 vehicles) from the priority evacuation area of the Project. 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	1.5 hours to evacuate 826 DU (1,932 vehicles) from the priority evacuation area of the Project. 2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	No priority area, total evacuation shown for information purposes: 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
8. NNEat70Line	1.5 hour to evacuate 842 DU (1,970 vehicles) from the priority evacuation area of the Project. 4.75 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	1.25 hours to evacuate 767 DU (1,795 vehicles) from the priority evacuation area of the Project. 2.75 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	1.75 minutes to evacuate 963 DU (2,253 vehicles) from the priority evacuation area of the Project. 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
9. Nat70Line	3.5 hours to evacuate 1,687 DU (3,948 vehicles) from the priority evacuation area of the Project. 5.75 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	2.5 hours to evacuate 940 DU (2,198 vehicles) from the priority evacuation area of the Project. 3.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	3.5 hours to evacuate 1,702 DU (3,983 vehicles) from the priority evacuation area of the Project. 5.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
10. Templin Trigger	3.75 hours to evacuate entire Project 3,150 DU (7,371 vehicles).	3.25 hours to evacuate entire Project 1,815 DU (4,247 vehicles).	5.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles).
DU = dwelling units			

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

Evacuation Estimate Conclusions

1. Route Fire Sim Scenario

Under the Previously Approved Project, Evacuation Point 1 has no closure limit and Evacuation Point 2 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 3A ("B" Street") has no limit, however, Ridge Route Road in between "B" Street and Northlake Boulevard (Route Point 0) closes at 60 minutes and does not reopen. Therefore, Evacuation Point 3A would be unusable because of no access to Ridge Route. It would take approximately 2 hours to evacuate the priority area (approximately 2,593 vehicles) and approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 2 and the closure of Evacuation Point 3A as Evacuation Point 1 never closes and Evacuation Point 2 reopens after 90 minutes.

Under the CAA, Evacuation Point 1 closes at 90 minutes and reopens at 150 minutes (from the start of the fire) and Evacuation Point 2 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 3B closes at 60 minutes and does not reopen. It would take approximately 1 hour to evacuate the priority area (approximately 1,524 vehicles) and approximately 3 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 1 and Evacuation Point 2 and the closure of Evacuation Point 3B as Evacuation Point 1 reopens after 150 minutes and Evacuation Point 2 reopens after 90 minutes.

Under the PCAA, Evacuation Point 1 has no closure limit and Evacuation Point 2 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 3C closes at 60 minutes and does not reopen. It would take approximately 1.75 hours to evacuate the priority area (approximately 2,169 vehicles) and approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 2 and the closure of Evacuation Point 3C as Evacuation Point 1 never closes and Evacuation Point 2 reopens after 90 minutes.

2. SSWat40Spot Scenario

Under the Previously Approved Project, Evacuation Point 1 has no closure limit and Evacuation Point 2 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 3A closes at 60 minutes and does not reopen. It would take approximately 2.25 hours to evacuate the priority area (approximately 3,009 vehicles) and approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 2 and the closure of Evacuation Point 3A as Evacuation Point 1 never closes and Evacuation Point 2 reopens after 90 minutes.

Under the CAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3B closes at 60 minutes and does not reopen. It would take approximately 45 minutes to evacuate the priority area (approximately 1,129 vehicles) and approximately 2.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3B as Evacuation Point 1 and Evacuation Point 2 never closes.

Under the PCAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3C closes at 60 minutes and does not reopen. It would take approximately 2 hours to evacuate the priority area (approximately 3,206 vehicles) and approximately 4.25 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3C as Evacuation Point 1 and Evacuation Point 2 never close.

3. SSWat40Line Scenario

Under the Previously Approved Project, Evacuation Point 1 and Evacuation 2 Point have no closure limit and Evacuation Point 3A closes at 60 minutes and does not reopen. It would take approximately 2 hours to evacuate the priority area (approximately 3,236 vehicles) and approximately 4.25 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the closure of Evacuation Point 3A as Evacuation Point 1 and Evacuation Point 2 never close.

Under the CAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3B closes at 60 minutes and does not reopen. It would take approximately 1.5 hours to evacuate the priority area (approximately 2,653 vehicles) and approximately 2.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3B as Evacuation Point 1 and Evacuation Point 2 never close.

Under the PCAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3C closes at 60 minutes and does not reopen. It would take approximately 2.25 hours to evacuate the priority area (approximately 3,475 vehicles) and approximately 4.25 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3C as Evacuation Point 1 and Evacuation Point 2 never close.

4. Sat40Line Scenario

Under the Previously Approved Project, all evacuation points have no closure limit. It would take approximately 3.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given all evacuation points never close.

Under the CAA, all evacuation points have no closure limit. It would take approximately 2 hours to evacuate the entire community. Thus, full evacuation can successfully take place given all evacuation points never close.

Under the PCAA, all evacuation points have no closure limit. It would take approximately 3.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given all evacuation points never close.

5. FreewaySpotsat40 Scenario

Under the Previously Approved Project, all evacuation points close at 30 minutes and reopen at 120 minutes (from the start of the fire). In addition, Ridge Route Point 0, 1, 2, and 3 all close at 30 minutes and reopen at 120 minutes (from the start of the fire). During the closure, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted at 120 minutes, evacuation may resume. It would take approximately 2.5 hours to evacuate the priority area (approximately 1,924 vehicles) and approximately 5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of all evacuation points and Ridge Route Road closures as they all reopen after 120 minutes.

Under the CAA, all evacuation points close at 30 minutes. Evacuation Point 1 reopens at 120 minutes (from the start of the fire) and Evacuation Point 2 reopens at 150 minutes (from the start of the fire). Evacuation Point 3B does not reopen. In addition, Ridge Route Points 1, 2, and 3 all close at 30 minutes and reopen at

120 minutes (from the start of the fire). During the closure, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the Ridge Route Road closures have been lifted at 120 minutes, evacuation may resume. It would take approximately 3.25 hours to evacuate the priority area (approximately 2,129 vehicles) and approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of all evacuation points and Ridge Route Road closures as Ridge Route Points 1, 2, and 3 reopen at 120 minutes and Evacuation Point 2 reopens at 150 minutes.

Under the PCAA, all evacuation points close at 30 minutes and reopen at 120 minutes (from the start of the fire). In addition, Ridge Route Point 0, 1, 2, and 3 all close at 30 minutes and reopen at 120 minutes (from the start of the fire). During the closure, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted at 120 minutes, evacuation may resume. It would take approximately 2.75 hours to evacuate the priority area (approximately 2,649 vehicles) and approximately 5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of all evacuation points and Ridge Route Road closures as they all reopen after 120 minutes.

6. LakeSpotat40 Scenario

Under the Previously Approved Project, Evacuation Point 1 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 2 and Evacuation Point 3A have no closure limits. Ridge Route Points 1, 2, and 3 close at 4 hours and reopen at 5 hours (from the start of the fire). During the Ridge Route closures, those at risk may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. It would take approximately 1.25 hours to evacuate the priority area (approximately 2,101 vehicles) and approximately 3.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the closure of Evacuation Point 1 as it reopens after 90 minutes.

Under the CAA, Evacuation Point 1 closes at 60 minutes and reopens at 90 minutes. Evacuation Point 2 closes at 90 minutes and reopens at 120 minutes. Evacuation Point 3B closes at 120 minutes and does not reopen. Ridge Route Points 1, 2, and 3 close at 4 hours and reopen at 5 hours (from the start of the fire). During the Ridge Route closures, those at risk may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. It would take approximately 2.5 hours to evacuate the priority area (approximately 3,861 vehicles) and the entire community. Thus, full evacuation can successfully take place given the limitation of closures at all evacuation points as Evacuation Point 1 reopens at 90 minutes and Evacuation Point 2 reopen at 120 minutes.

Under the PCAA, Evacuation Point 1 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 2 and Evacuation Point 3C have no closure limits. Ridge Route Points 1, 2, and 3 close at 4 hours and reopen at 5 hours (from the start of the fire). During the Ridge Route closures, those at risk may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. It would take approximately 1.5 hours to evacuate the priority area (approximately 2,471 vehicles) and approximately 3.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the closure of Evacuation Point 1 as it reopens after 90 minutes.

7. NEat70Line Scenario

Under the Previously Approved Project, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3A is closed from the start of the fire and would not reopen until 5 hours (from the start of the fire). It would take approximately 1 hour to evacuate the priority area (approximately 1,334 vehicles) and approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3A as Evacuation Point 1 and Evacuation Point 2 never close.

Under the CAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3B is closed from the start of the fire and would not reopen until 105 minutes (from the start of the fire). It would take approximately 1.5 hours to evacuate the priority area (approximately 1,932 vehicles) and approximately 2.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3A as Evacuation Point 1 and Evacuation Point 2 never close.

Under the PCAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3C would be closed for the duration of the fire and Ridge Route Point 0 closes after 45 minutes and would be closed for the duration of the fire. It would take approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3C and Ridge Route Point 0 as Evacuation Point 1 and Evacuation Point 2 never close.

8. NNEat70Line Scenario

Under the Previously Approved Project, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3A is closed from the start of the fire and would not reopen until 4.25 hours (from the start of the fire). Ridge Route Points 2 and 3 would close at 4 hours and reopen at 4.5 hours. During the Ridge Route closures those at risk may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. It would take approximately 1.5 hours to evacuate the priority area (approximately 1,970 vehicles) and approximately 4.75 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3A as Evacuation Point 1 and Evacuation Point 2 never closes.

Under the CAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3B is closed from the start of the fire and would not reopen until 4.25 hours (from the start of the fire). Ridge Route Points 2 and 3 would close at 4 hours and reopen at 4.5 hours. During the Ridge Route closures, those at risk may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. It would take approximately 1.25 hours to evacuate the priority area (approximately 1,795 vehicles) and approximately 2.75 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3A as Evacuation Point 1 and Evacuation Point 2 never close.

Under the PCAA, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3C would be closed for the duration of the fire. Ridge Route Points 2 and 3 would close at 4 hours and reopen at 4.5 hours. During the Ridge Route closures, those at risk may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. It would take approximately 1.75 hours to evacuate the priority area (approximately 2,253 vehicles) and approximately 4.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3C as Evacuation Point 1 and Evacuation Point 2 never close.

9. Nat70Line Scenario

Under the Previously Approved Project, Evacuation Point 1 has no closure limit. Evacuation Point 2 closes at 90 minutes and reopens at 120 minutes (from the start of the fire). Evacuation Point 3A would be closed for the duration of the fire. Ridge Route Point 1 has no closure limits and Ridge Route Point 3 would be closed at 120 minutes and reopen at 150 minutes (from the start of the fire). Ridge Route Points 2 and 4 would close at 4 hours and reopen at 4.5 hours. During the closure of Ridge Route Road, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted at 150 minutes and again at 4.5 hours, evacuation may resume. It would take approximately 3.5 hours to evacuate the priority area (approximately 3,948 vehicles) and approximately 5.75 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the closure of Evacuation Point 2 as it reopens after 120 minutes and closures of Ridge Route Road, as it reopens after 150 minutes.

Under the CAA, Evacuation Point 1 has no closure limit. Evacuation Point 2 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 3B would be closed for the duration of the fire. Ridge Route Point 1 would close at 60 minutes and reopen at 90 minutes and Ridge Route Point 3 would be closed at 120 minutes and reopen at 150 minutes (from the start of the fire). Ridge Route Points 2 and 4 would close at 4 hours and reopen at 4.5 hours. During the closure of Ridge Route Road, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted at 90 minutes and again at 150 minutes, evacuation may resume. It would take approximately 2.5 hours to evacuate the priority area (approximately 2,198 vehicles) and approximately 3.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the closure of Evacuation Point 2 as it reopens after 90 minutes and closures of Ridge Route Road, as it reopens after 90 minutes and 150 minutes.

Under the PCAA, Evacuation Point 1 has no closure limit. Evacuation Point 2 closes at 60 minutes and reopens at 90 minutes (from the start of the fire). Evacuation Point 3C would be closed for the duration of the fire. Ridge Route Point 1 has no closure limit and Ridge Route Point 3 would be closed at 120 minutes and reopen at 150 minutes (from the start of the fire). Ridge Route Points 2 and 4 would close at 4 hours and reopen at 4.5 hours. During the closure of Ridge Route Road, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted at 150 minutes and again at 4.5 hours, evacuation may resume. It would take approximately 3.5 hours to evacuate the priority area (approximately 3,983 vehicles) and approximately 5.25 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the closure of Evacuation Point 2 as it reopens after 120 minutes and closures of Ridge Route Road, as it reopens after 150 minutes.

These scenarios result in the longest evacuation times due to a larger number of dwelling units within the priority area and all three evacuation points as well as segments on Ridge Route Road becoming impassible at one point in time (reopening at a later time).

10. Templin Trigger Scenario

Under the Previously Approved Project, Evacuation Point 1 and Evacuation Point 2 have no closure limits. Evacuation Point 3A would be closed from the start of the fire and open at 75 minutes. Ridge Route Point 1 has no closure limit and Ridge Route Point 3 would be closed at 4 hours and reopen at 4.5 hours (from the

start of the fire). Ridge Route Points 2 and 4 would close at 5 hours and reopen at 5.5 hours. During the closure of Ridge Route Road Point 2, 3, and 4, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted at 4.5 hours and again at 5.5 hours, evacuation may resume. It would take approximately 3.75 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3A and closures of Ridge Route Road, as full evacuation of the community could occur before their closures.

Under the CAA, Evacuation Point 1 has no closure limits and Evacuation Point 2 would close at 60 minutes and reopen at 90 minutes. Evacuation Point 3B would be closed for the duration of the fire. Ridge Route Point 1 would be closed at 60 minutes and reopen at 90 minutes and Ridge Route Point 3 would be closed at 4 hours and reopen at 4.5 hours (from the start of the fire). Ridge Route Points 2 and 4 would close at 5 hours and reopen at 5.5 hours. During the closure of Ridge Route Road Point 2, 3, and 4, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted for Ridge Route Point 2, 3, 4, evacuation may resume. It would take approximately 3.25 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3B and Evacuation Point 2, and closures of Ridge Route Road as they would reopen.

Under the PCAA, Evacuation Point 1 has no closure limit and Evacuation Point 2 would close at 60 minutes and reopen at 105 minutes. Evacuation Point 3C would be closed for the duration of the fire. Ridge Route Point 1 would be closed at 60 minutes and reopen at 90 minutes and Ridge Route Point 3 would be closed at 4 hours and reopen at 4.5 hours (from the start of the fire). Ridge Route Points 2 and 4 would close at 5 hours and reopen at 5.5 hours. During the closure of Ridge Route Road Point 2, 3, and 4, those at risk in the priority area may need to move to an area of refuge if a shelter in place decision has not been made by emergency personnel. When the closures have been lifted for Ridge Route Point 2, 3, 4, evacuation may resume. It would take approximately 5.5 hours to evacuate the entire community. Thus, full evacuation can successfully take place given the limitation of Evacuation Point 3C and Evacuation Point 2, and closures of Ridge Route Road as they would reopen.

As demonstrated above, in some scenarios southerly segments of Ridge Route Road become impassible after a certain amount of time and would reopen after a certain amount of time. This analysis assumes that evacuation would pause/close when Ridge Route is impassable. Although Ridge Route Road may be impassable, other areas of the Project are not affected. In this instance, an evacuation route directly onto the I-5 freeway from Ridge Route Road may be a feasible approach to provide an alternative to Ridge Route Road.

Cumulative Conditions

Information provided by the Los Angeles County Department of Regional Planning[2] indicates that there is only one cumulative project in the vicinity of the Project, the Centennial Specific Plan. This project will not utilize Ridge Route Road for access; therefore, traffic generation from this project would not affect the findings of the evacuation analysis presented above.

[2] Communication from Jodie Sackett, LA County DRP.

Off-site Recommendations

Evacuation of the Project and adjacent communities of Northlake Hills and Wildwood is dependent on having adequate traffic conditions within the existing Castaic community just south of the Project area. One potential constraint is the existing intersection of Ridge Route Road at Lake Hughes Road, through which all Northlake, Northlake Hills, and Wildwood traffic needs to pass through. The Ridge Route Road/Lake Hughes Road is currently configured as an all-way stop but will be upgraded to a traffic signal with development of the Project. During an evacuation, traffic flow through the intersection should be directly managed by emergency personnel to ensure a continual flow of traffic from the areas being evacuated.

Closure of the I-5 freeway during emergency situations will often result in freeway traffic being routed onto the roadways within the Castaic community. During an evacuation, this could impede the flow of traffic from the areas being evacuated. To avoid congestion caused by freeway diversion, freeway traffic should instead be rerouted further south, such as at the State Route 126 interchange, where roadways have greater capacity than the Castaic roadways.

Conclusion

Evacuation times for the proposed Project were estimated for 3 land use alternatives (Previously Approved Project, CAA, and PCAA) and 10 scenarios from the Wildland Fire Risk Report. The following summarizes key findings:

- All modeled scenarios would allow all vehicles to evacuate within the allowable time limit. This assumes that an evacuation point would only temporarily close (approximately one hour at most) and would reopen after the fire is no longer a threat to that area.
- One of the 10 modeled scenarios would not require any evacuation of the Project site (Scenario 4 Previously Approved Plan, CAA, and PCAA).
- The closure of the southerly segments of Ridge Route Road would result in a temporary pause on evacuations. Since Ridge Route Road is the only egress route, a “shelter in place” recommendation may be made in an event where Ridge Route Road cannot reopen.
- An evacuation route directly onto the I-5 freeway from Ridge Route Road would provide an alternative to Ridge Route Road but would require a substantial amount of evaluation and coordination with Caltrans to implement.
- During an evacuation, emergency personnel should directly manage the intersection of Ridge Route Road at Lake Hughes Road to ensure a continual flow of traffic from the areas being evacuated.
- To minimize the impact resulting from closure of the I-5 freeway during emergency situations, freeway traffic should be rerouted south of the Castaic community, such as at the State Route 126 interchange, where roadways have greater capacity than the Castaic roadways.

Please reach out to us if you would like to discuss this memorandum.

Reference: Northlake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates

Sincerely,

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Attachments: Figure 1 Project Location Map
Figure 2 Land Use Alternatives
Figure 3 Previously Approved Project Mobility Plan
Figure 4 Evacuation Points
Estimated Evacuation Time Worksheets
Northlake Specific Plan Evacuation Route Assumptions and Estimated Evacuation Time Summary
Previously Approved TM Density Exhibit, Sikand
Creek Avoidance Density Exhibit, Sikand
Partial Creek Avoidance Density Exhibit, Sikand

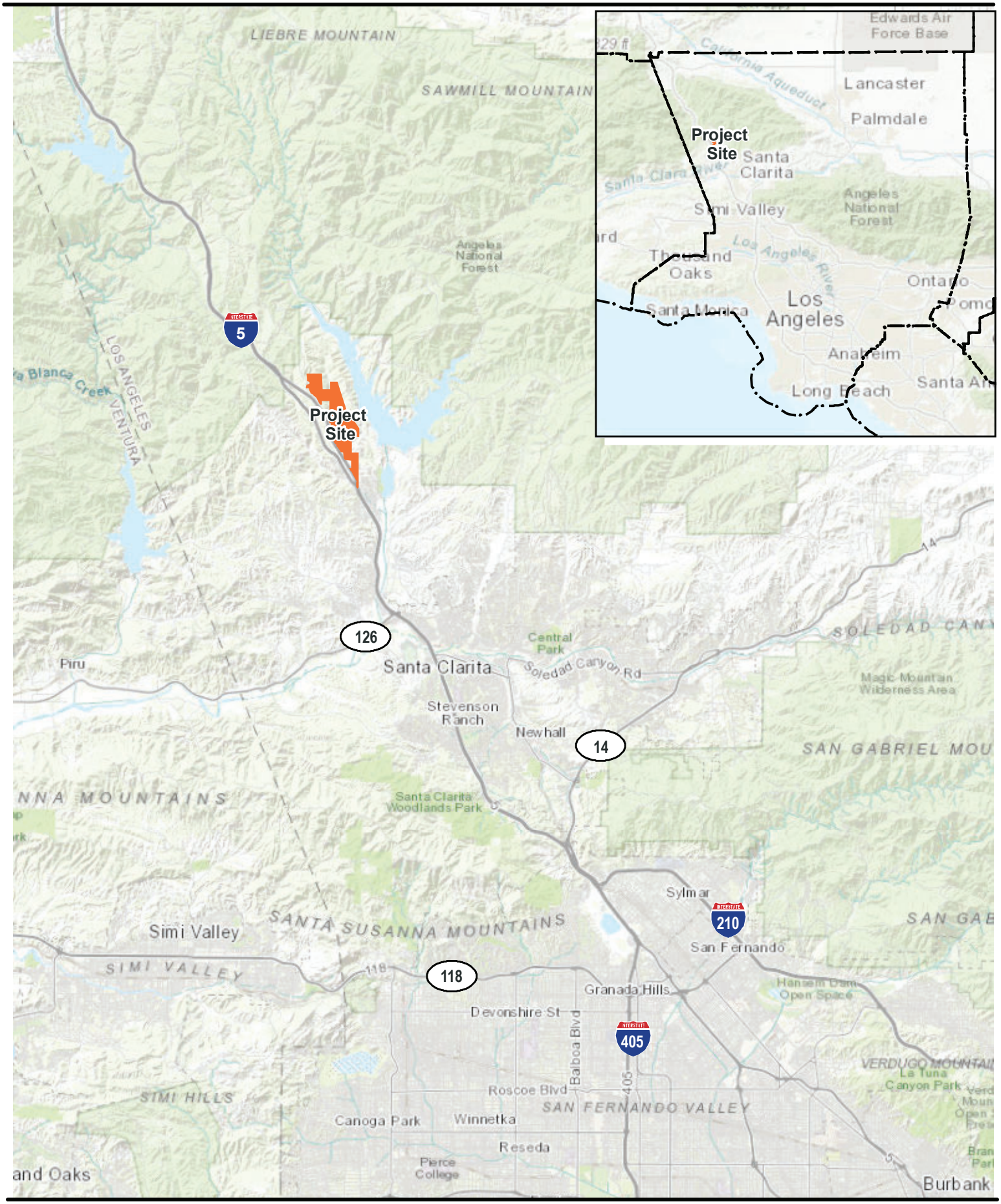
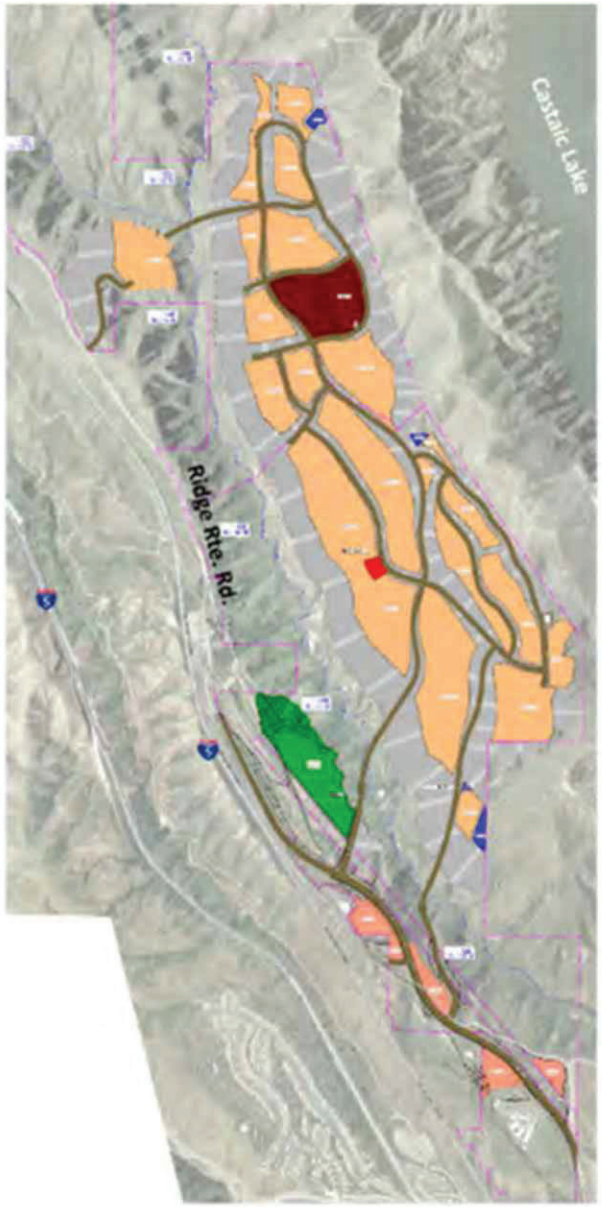


Figure 1
Project Location Map



PREVIOUSLY APPROVED PLAN



CREEK AVOIDANCE ALTERNATIVE



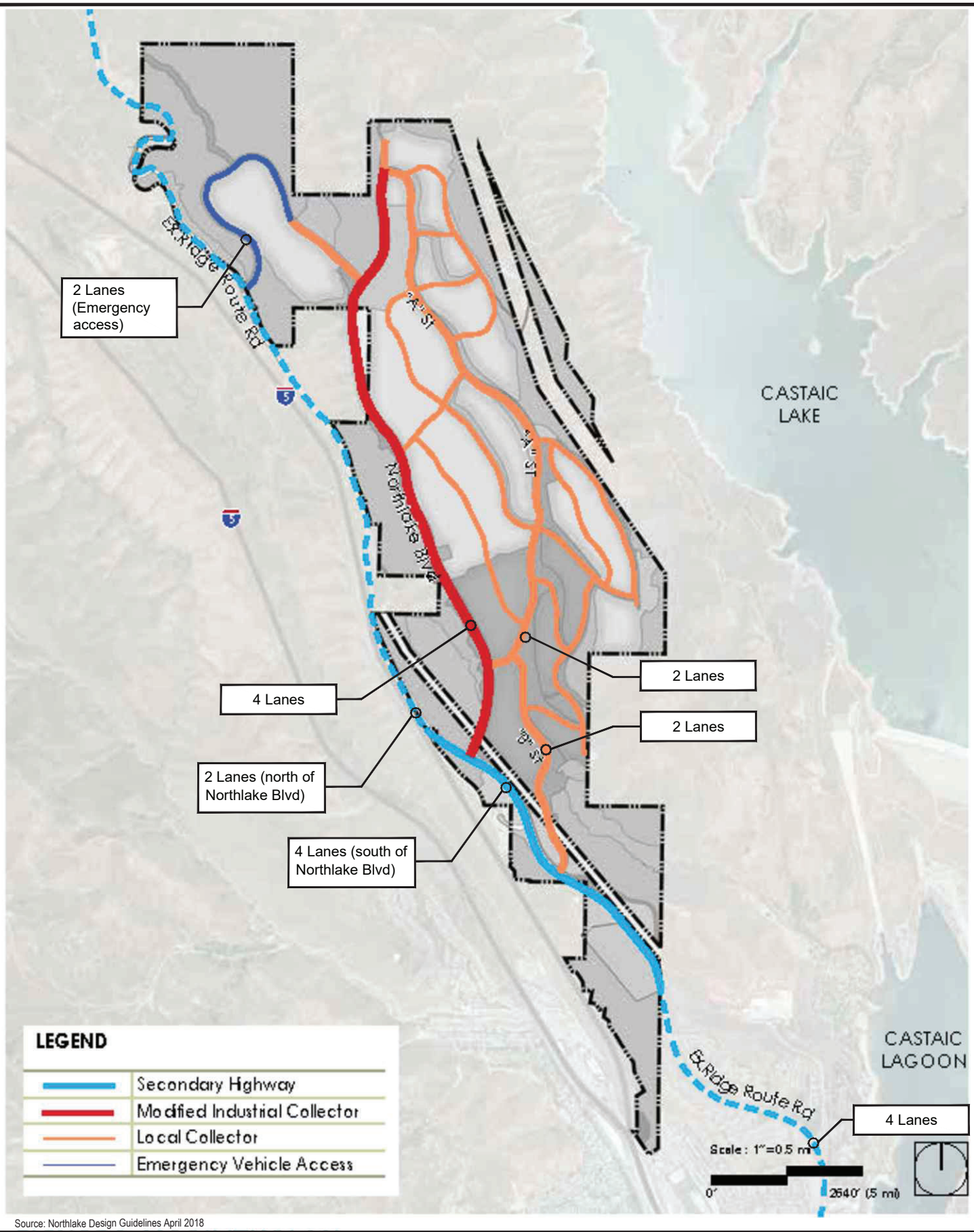
PARTIAL CREEK AVOIDANCE ALTERNATIVE

Source: Wildland Fire Risk Report Northlake Specific Plan (2023)

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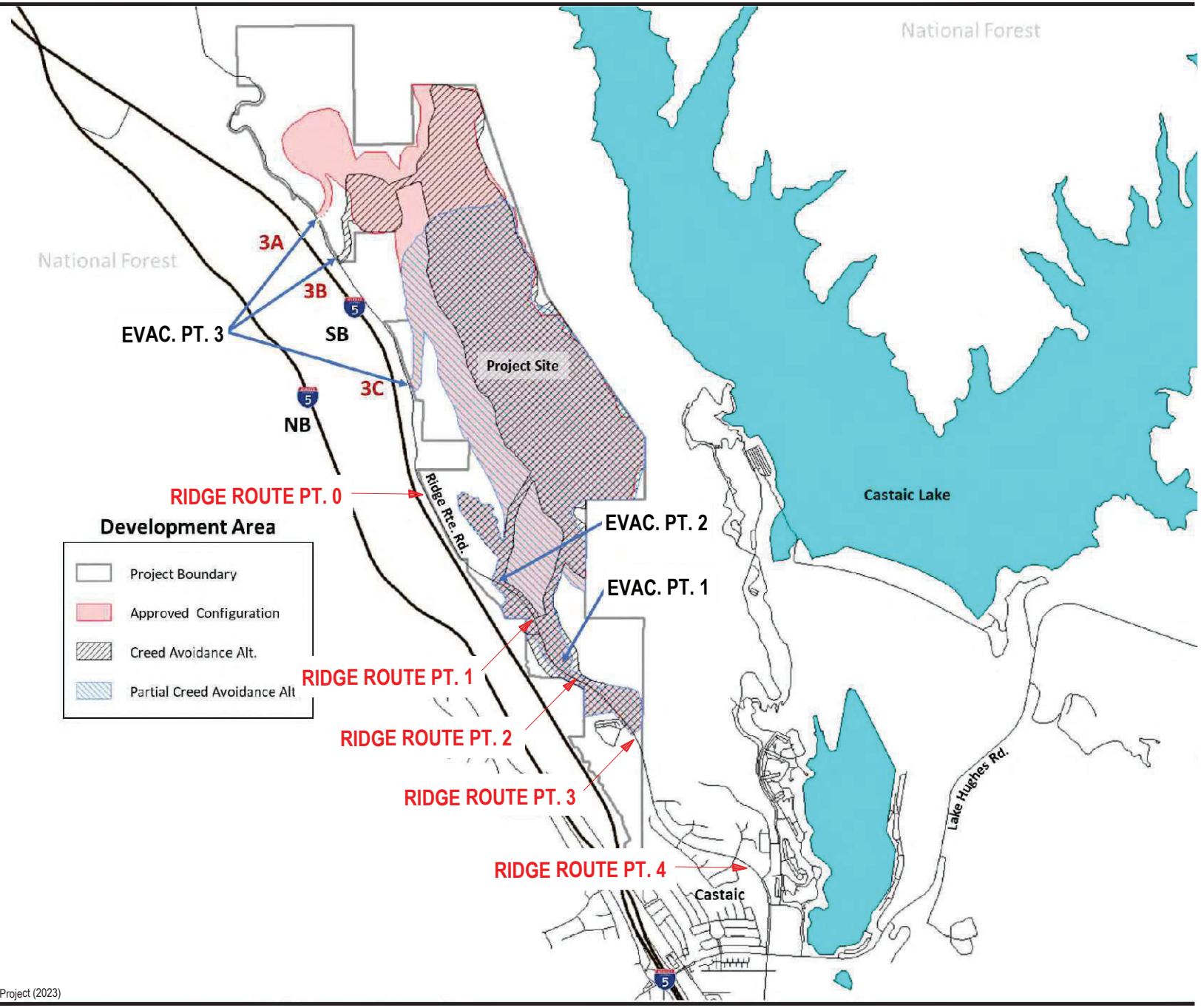
Figure 2
Land Use Alternatives



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Source: Northlake Design Guidelines April 2018

Figure 3
Previously Approved Project Mobility Plan



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Source: Wildland Fire Risk Report Northlake Project (2023)

Figure 4
Key Evacuation Points

1. Route Fire Sim - Previously Approved Plan

Results: 2 hours to evacuate 1,108 DU (2,593 vehicles) from the priority evacuation area of the Project
4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

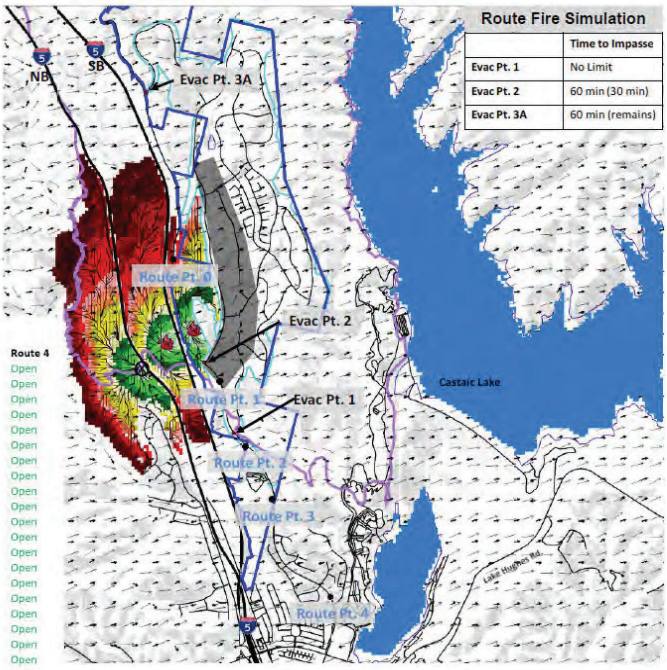
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt 1	Evac Pt. 1	Ridge Route Pt 2	Project Affordable Housing	Ridge Route Pt 3	Northlake Hills	Ridge Route Pt 4
Number of vehicles to evacuate from critical homes i(n shaded area on map)	**356**	**1,264**	**1,620**	**973**	**2,593**	**0**	**2,593**	**0**	**2,593**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	No limit, however, Ridge Route Pt 0 closes at 60 Min	Closes at 60 Min, reopens in 90 Min	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45	Min	**375**	750	1,125	375	1,500	750	2,250	*0*	2,250
60	Min	*375*	*750*	*1,125*	500	1,625	751	2,376	*0*	2,376
75	Min	*375*	*750*	*1,125*	625	1,750	*751*	2,501	*0*	2,501
90	Min	*375*	1,000	1,375	750	2,125	*751*	2,876	*0*	2,876
105	Min	*375*	1,250	1,625	875	2,500	*751*	3,251	*0*	3,251
120	Min	*375*	**1,500**	**1,875**	**1,000**	**2,875**	*751*	3,626	*0*	3,626
135	Min	*375*	1,750	2,125	1,125	3,250	*751*	4,001	*0*	4,001
150	Min	*375*	2,000	2,375	1,250	3,625	*751*	4,376	*0*	4,376
165	Min	*375*	2,250	2,625	1,375	4,000	*751*	4,751	*0*	4,751
180	Min	*375*	2,500	2,875	1,500	4,375	*751*	5,126	*0*	5,126
195	Min	*375*	2,750	3,125	1,625	4,750	*751*	5,501	*0*	5,501
210	Min	*375*	3,000	3,375	1,750	5,125	*751*	5,876	*0*	5,876
225	Min	*375*	3,250	3,625	1,875	5,500	*751*	6,251	*0*	6,251
240	Min	*375*	3,500	3,875	2,000	5,875	*751*	6,626	*0*	6,626
255	Min	*375*	3,750	4,125	2,125	6,250	*751*	7,001	*0*	7,001
270	Min	*375*	4,000	4,375	2,250	6,625	*751*	**7,376**	*0*	**7,376**
285	Min	*375*	*4,000*	*4,375*	*2,250*	*6,625*	*751*	*7,376*	*0*	*7,376*

Existing Conditions prior to the Route Fire
Previously Approved Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a WSW Wind at 25 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn ENE And spots over the SB I-5 impacting Ridge Route and Evac Point 2 at 60 min (elapsed time) and continues to burn to the north to the north and south along the Project Site.



Route Fire Sim 25 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	Open	n/a	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open

1. Route Fire Sim - Creek Avoidance Alt.

Results: 1 hour to evacuate 651 DU (1,524 vehicles) from the priority evacuation area of the Project
3 hours to evacuate 1,815 DU entire Project (4,247 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

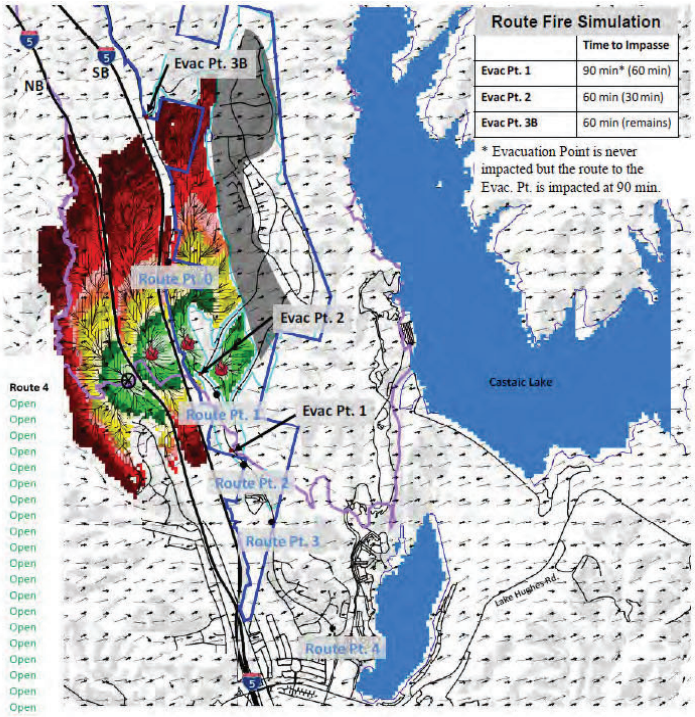
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt 1	Evac Pt. 1	Ridge Route Pt 2	Project Affordable Housing	Ridge Route Pt 3	Northlake Hills	Ridge Route Pt 4
Number of vehicles to evacuate from critical homes i(n shaded area on map)	**365**	**728**	**1,093**	**431**	**1,524**	**0**	**1,524**	**0**	**1,524**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	Closes at 60 Min, reopens at 90 Min	No limit	Closes at 90 Min, opens at 150 Min	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	386	1,386	*0*	1,386
45	Min	**375**	**750**	**1,125**	375	1,500	*386*	1,886	*0*	1,886
60	Min	*375*	*750*	*1,125*	**500**	**1,625**	*386*	2,011	*0*	2,011
75	Min	*375*	*750*	*1,125*	625	1,750	*386*	2,136	*0*	2,136
90	Min	*375*	1,000	1,375	*625*	*2,000*	*386*	2,386	*0*	2,386
105	Min	*375*	1,250	1,625	*625*	*2,250*	*386*	2,636	*0*	2,636
120	Min	*375*	1,500	1,875	*625*	*2,500*	*386*	2,886	*0*	2,886
135	Min	*375*	1,750	2,125	*625*	*2,750*	*386*	3,136	*0*	3,136
150	Min	*375*	2,000	2,375	750	3,125	*386*	3,511	*0*	3,511
165	Min	*375*	2,250	2,625	875	3,500	*386*	3,886	*0*	3,886
180	Min	*375*	2,500	2,875	1,000	3,875	*386*	**4,261**	*0*	**4,261**
195	Min	*375*	*2,500*	*2,875*	*1,000*	*3,875*	*386*	*4,261*	*0*	*4,261*

Existing Conditions prior to the Route Fire Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a WSW Wind at 25 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn ENE And spots over the SB I-5 impacting Ridge Route and Evac Point 2 at 60 min (elapsed time) and continues to burn to the north to the north and south along the Project Site spotting over Evac Point 2 at .



Route Fire Sim 25 mph Avoid		Evacuation to the South									
		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	1:30	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	1:45	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	2:00	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Closed	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open

1. Route Fire Sim - Partial Creek Avoidance Alt.

Results: 1.75 hours to evacuate 927 DU (2,169 vehicles) from the priority evacuation area of the Project
4.5 hours to evacuate 3,150 DU entire Project (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

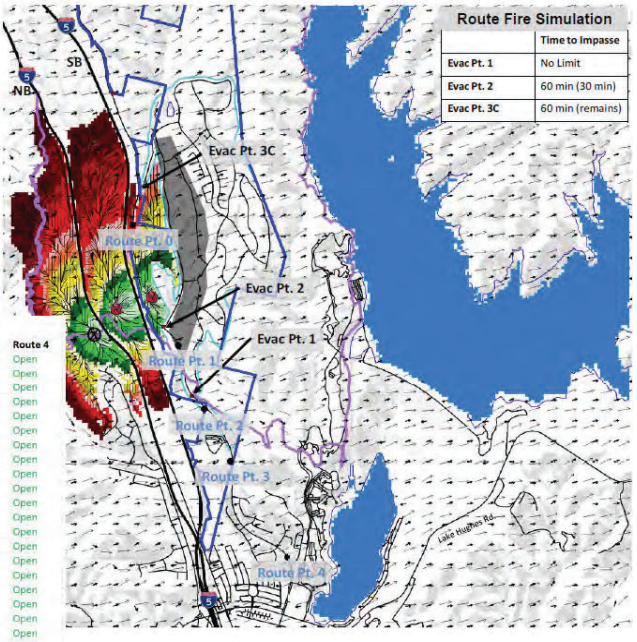
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt 1	Evac Pt. 1	Ridge Route Pt 2	Project Affordable Housing	Ridge Route Pt 3	Northlake Hills	Ridge Route Pt 4
Number of vehicles to evacuate from critical homes i(n shaded area on map)	**374**	**938**	**1,311**	**858**	**2,169**	**0**	**2,169**	**0**	**2,169**
Number of lanes at evacuation point	**1**	**2**	--	**1**	--	2	--		--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	Closes at 60 Min, reopens at 90 Min	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	250	750	*0*	750
30 Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45 Min	**375**	750	1,125	375	1,500	750	2,250	*0*	2,250
60 Min	*375*	*750*	*1,125*	500	1,625	*751*	2,376	*0*	2,376
75 Min	*375*	*750*	*1,125*	625	1,750	*751*	2,501	*0*	2,501
90 Min	*375*	**1,000**	**1,375**	750	2,125	*751*	2,876	*0*	2,876
105 Min	*375*	1,250	1,625	**875**	**2,500**	*751*	3,251	*0*	3,251
120 Min	*375*	1,500	1,875	1,000	2,875	*751*	3,626	*0*	3,626
135 Min	*375*	1,750	2,125	1,125	3,250	*751*	4,001	*0*	4,001
150 Min	*375*	2,000	2,375	1,250	3,625	*751*	4,376	*0*	4,376
165 Min	*375*	2,250	2,625	1,375	4,000	*751*	4,751	*0*	4,751
180 Min	*375*	2,500	2,875	1,500	4,375	*751*	5,126	*0*	5,126
195 Min	*375*	2,750	3,125	1,625	4,750	*751*	5,501	*0*	5,501
210 Min	*375*	3,000	3,375	1,750	5,125	*751*	5,876	*0*	5,876
225 Min	*375*	3,250	3,625	1,875	5,500	*751*	6,251	*0*	6,251
240 Min	*375*	3,500	3,875	2,000	5,875	*751*	6,626	*0*	6,626
255 Min	*375*	3,750	4,125	2,125	6,250	*751*	7,001	*0*	7,001
270 Min	*375*	4,000	4,375	2,250	6,625	*751*	**7,376**	*0*	**7,376**
285 Min	*375*	*4,000*	*4,375*	*2,250*	*6,625*	*751*	*7,376*	*0*	*7,376*

Existing Conditions prior to the Route Fire
Partial Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a WSW Wind at 25 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn ENE And spots over the SB I-5 impacting Ridge Route and Evac Point 2 at 60 min (elapsed time) and continues to burn to the north to the north and south along the Project Site.



Route Fire Sim 25 mph Partial Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open

2. SSWat40Spot - Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 2.25 hours to evacuate 1,286 DU (3,009 vehicles) from the priority evacuation area of the Project
4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

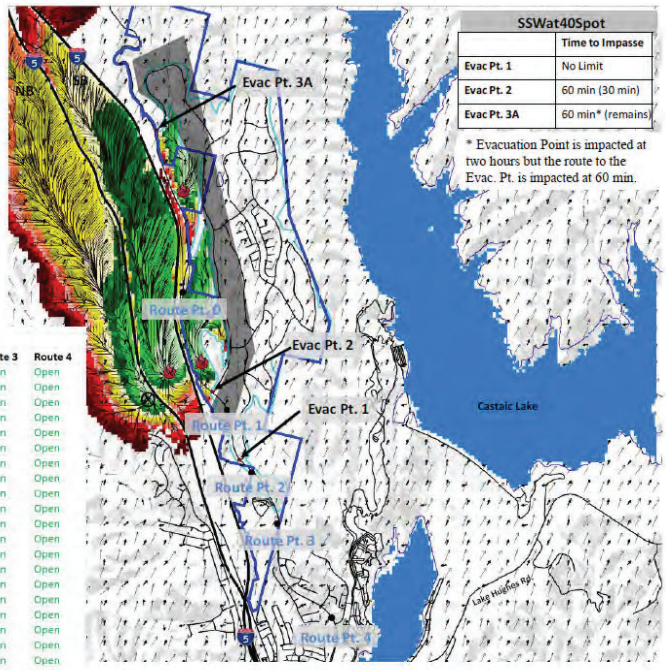
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt 1	Evac Pt. 1	Ridge Route Pt 2	Project Affordable Housing	Ridge Route Pt 3	Northlake Hills	Ridge Route Pt 4
Number of vehicles to evacuate from critical homes (in shaded area on map)	**366**	**1,632**	**1,998**	**1,011**	**3,009**	**0**	**3,009**	**0**	**3,009**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	Closes at 60 Min, reopens at 90 Min	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45	Min	**375**	750	1,125	375	1,500	750	2,250	*0*	2,250
60	Min	*375*	*750*	*1,125*	500	1,625	751	2,376	*0*	2,376
75	Min	*375*	*750*	*1,125*	625	1,750	*751*	2,501	*0*	2,501
90	Min	*375*	1,000	1,375	750	2,125	*751*	2,876	*0*	2,876
105	Min	*375*	1,250	1,625	875	2,500	*751*	3,251	*0*	*3,251*
120	Min	*375*	1,500	1,875	1,000	2,875	*751*	3,626	*0*	3,626
135	Min	*375*	**1,750**	**2,125**	**1,125**	**3,250**	*751*	4,001	*0*	4,001
150	Min	*375*	2,000	2,375	1,250	3,625	*751*	4,376	*0*	4,376
165	Min	*375*	2,250	2,625	1,375	4,000	*751*	4,751	*0*	4,751
180	Min	*375*	2,500	2,875	1,500	4,375	*751*	5,126	*0*	5,126
195	Min	*375*	2,750	3,125	1,625	4,750	*751*	5,501	*0*	5,501
210	Min	*375*	3,000	3,375	1,750	5,125	*751*	5,876	*0*	5,876
225	Min	*375*	3,250	3,625	1,875	5,500	*751*	6,251	*0*	6,251
240	Min	*375*	3,500	3,875	2,000	5,875	*751*	6,626	*0*	6,626
255	Min	*375*	3,750	4,125	2,125	6,250	*751*	7,001	*0*	7,001
270	Min	*375*	4,000	4,375	2,250	6,625	*751*	**7,376**	*0*	**7,376**
285	Min	*375*	*4,000*	*4,375*	*2,250*	*6,625*	*751*	*7,376*	*0*	*7,376*

Increased Wind Speed (SSW direction)
Previously Approved Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.



SSW Spot at 40 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	Closed	n/a	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	Closed	n/a	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open

2. SSWat40Spot - Creek Avoidance Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 45 minutes to evacuate 483 DU (1,129 vehicles) from the priority evacuation area of the Project
2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

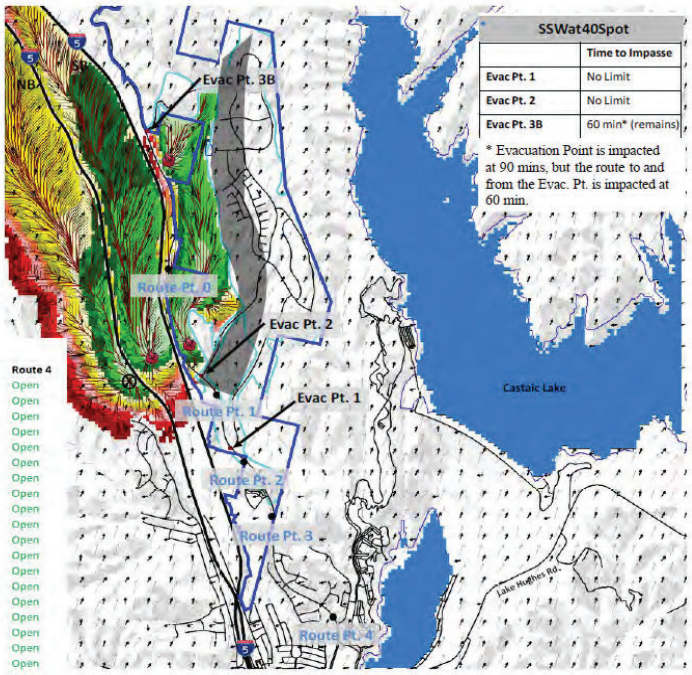
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt 1	Evac Pt. 1	Ridge Route Pt 2	Project Affordable Housing	Ridge Route Pt 3	Northlake Hills	Ridge Route Pt 4
Number of vehicles to evacuate from critical homes (in shaded area on map)	**257**	**508**	**765**	**364**	**1,129**	**0**	**1,129**	**0**	**1,129**
Number of lanes at evacuation point	1	2		1		2		1	
Vehicles per hour (vph) - no congestion	1,600	3,200		1,600		1,600		1,600	
Vehicles per hour (vph) - with congestion	500	1,000		500		1,000		500	
Vehicles per 15 min	125	250		125		250		125	
Time limit	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	No limit		No limit		--		--	

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	386	1,386	*0*	1,386
45	Min	**375**	**750**	**1,125**	**375**	**1,500**	*386*	1,886	*0*	1,886
60	Min	*375*	1,000	1,375	500	1,875	*386*	2,261	*0*	2,261
75	Min	*375*	1,250	1,625	625	2,250	*386*	2,636	*0*	2,636
90	Min	*375*	1,500	1,875	750	2,625	*386*	3,011	*0*	3,011
105	Min	*375*	1,750	2,125	875	3,000	*386*	3,386	*0*	3,386
120	Min	*375*	2,000	2,375	1,000	3,375	*386*	3,761	*0*	3,761
135	Min	*375*	2,250	2,625	1,125	3,750	*386*	4,136	*0*	4,136
150	Min	*375*	2,500	2,875	1,250	4,125	*386*	**4,511**	*0*	**4,511**
165	Min	*375*	*2,500*	*2,875*	*1,250*	*4,125*	*386*	*4,511*	*0*	*4,511*

Increased Wind Speed (SSW direction)
Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.



SSW Spot at 40 mph Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open

2. SSWat40Spot - Partial Creek Avoidance Alt.

Results: 2 hours to evacuate 1,370 DU (3,206 vehicles) from the priority evacuation area of the Project
4.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

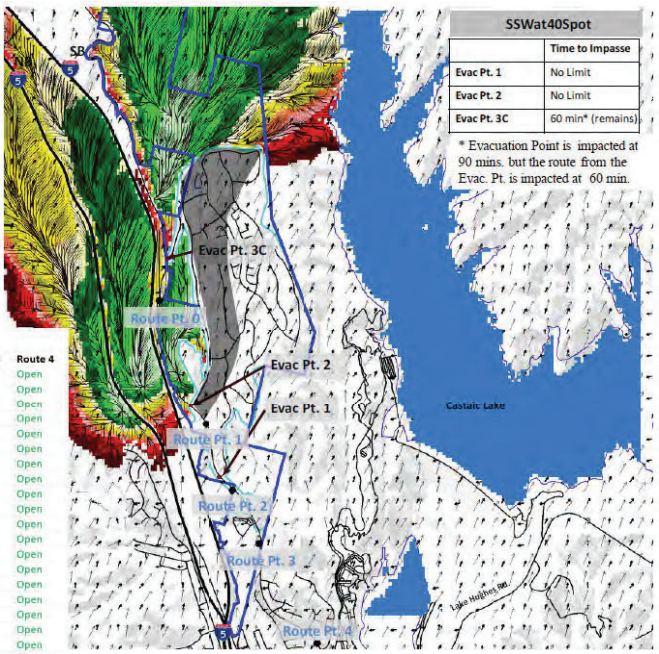
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt 1	Evac Pt. 1	Ridge Route Pt 2	Project Affordable Housing	Ridge Route Pt 3	Northlake Hills	Ridge Route Pt 4
Number of vehicles to evacuate from critical homes (in shaded area on map)	**372**	**1,839**	**2,211**	**994**	**3,206**	**0**	**3,206**	**0**	**3,206**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	No limit	--	No limit	--	--	--	--	--

Vehicle Evacuation Shown in 15 Minute Intervals

Time	A No. of Vehicles Passing Through Evac Pt. 3	B No. of Vehicles Passing Through Evac Pt. 2	A+B=C Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	D No. of Vehicles Passing Through Evac Pt. 1	C+D=E Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	F No. of Vehicles from Project AH Passing through Ridge Rt south of B St	E+F=G Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	H No. of Vehicles from NH Passing Through Ridge Rt	G+H=I Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	250	750	*0*	750
30 Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45 Min	**375**	750	1,125	375	1,500	750	2,250	*0*	2,250
60 Min	*375*	1,000	1,375	500	1,875	751	2,626	*0*	2,626
75 Min	*375*	1,250	1,625	625	2,250	*751*	3,001	*0*	3,001
90 Min	*375*	1,500	1,875	750	2,625	*751*	3,376	*0*	3,376
105 Min	*375*	1,750	2,125	875	3,000	*751*	3,751	*0*	3,751
120 Min	*375*	**2,000**	**2,375**	**1,000**	**3,375**	*751*	4,126	*0*	4,126
135 Min	*375*	2,250	2,625	1,125	3,750	*751*	4,501	*0*	4,501
150 Min	*375*	2,500	2,875	1,250	4,125	*751*	4,876	*0*	4,876
165 Min	*375*	2,750	3,125	1,375	4,500	*751*	5,251	*0*	5,251
180 Min	*375*	3,000	3,375	1,500	4,875	*751*	5,626	*0*	5,626
195 Min	*375*	3,250	3,625	1,625	5,250	*751*	6,001	*0*	6,001
210 Min	*375*	3,500	3,875	1,750	5,625	*751*	6,376	*0*	6,376
225 Min	*375*	3,750	4,125	1,875	6,000	*751*	6,751	*0*	6,751
240 Min	*375*	4,000	4,375	2,000	6,375	*751*	7,126	*0*	7,126
255 Min	*375*	4,250	4,625	2,125	6,750	*751*	**7,501**	*0*	**7,501**
270 Min	*375*	*4,250*	*4,625*	*2,125*	*6,750*	*751*	*7,501*	*0*	*7,501*

Increased Wind Speed (SSW direction)
Partial Creek Avoidance Development Added

Narrative: Fire begins as spot fires west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.



SSW Spot at 40 mph Partial Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open

3. SSWat40Line - Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 2 hours to evacuate 1,383 DU (3,236 vehicles) from the priority evacuation area of the Project
4.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

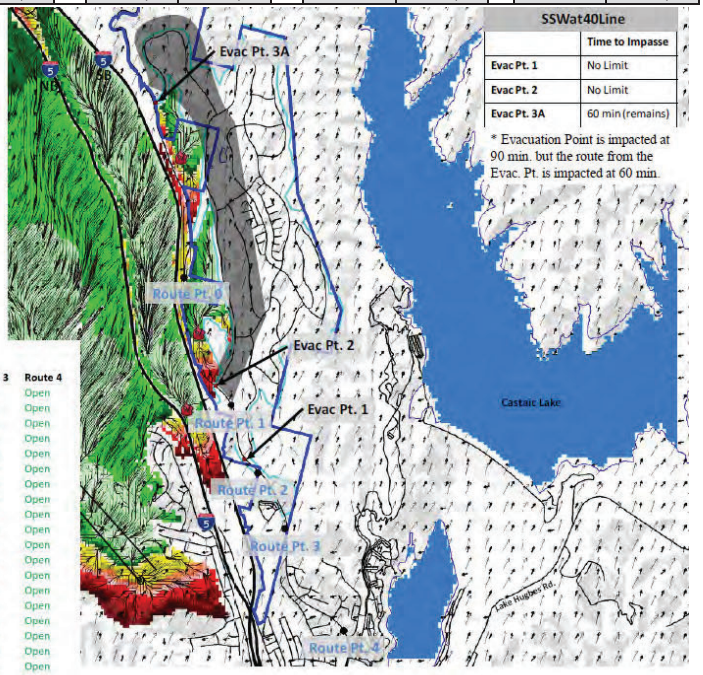
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1		Evac Pt. 1	Ridge Route Pt. 2		Project Affordable Housing	Ridge Route Pt. 3		Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	351	1,917	2,268		968	3,236		0	3,236		0	3,236
Number of lanes at evacuation point	1	2	--		1	--		2	--		1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--		1,600	--		1,600	--		1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--		500	--		1,000	--		500	--
Vehicles per 15 min	125	250	--		125	--		250	--		125	--
Time limit	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	No limit	No limit		No limit	No limit		No limit	No limit		--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C		D	C+D=E		F	E+F=G		H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1		No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2		No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3		No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375		125	500		250	750		*0*	750
30	Min	250	500	750		250	1,000		500	1,500		*0*	1,500
45	Min	375	750	1,125		375	1,500		750	2,250		*0*	2,250
60	Min	*375*	1,000	1,375		500	1,875		751	2,626		*0*	2,626
75	Min	*375*	1,250	1,625		625	2,250		*751*	3,001		*0*	3,001
90	Min	*375*	1,500	1,875		750	2,625		*751*	3,376		*0*	3,376
105	Min	*375*	1,750	2,125		875	3,000		*751*	3,751		*0*	3,751
120	Min	*375*	2,000	2,375		1,000	3,375		*751*	4,126		*0*	4,126
135	Min	*375*	2,250	2,625		1,125	3,750		*751*	4,501		*0*	4,501
150	Min	*375*	2,500	2,875		1,250	4,125		*751*	4,876		*0*	4,876
165	Min	*375*	2,750	3,125		1,375	4,500		*751*	5,251		*0*	5,251
180	Min	*375*	3,000	3,375		1,500	4,875		*751*	5,626		*0*	5,626
195	Min	*375*	3,250	3,625		1,625	5,250		*751*	6,001		*0*	6,001
210	Min	*375*	3,500	3,875		1,750	5,625		*751*	6,376		*0*	6,376
225	Min	*375*	3,750	4,125		1,875	6,000		*751*	6,751		*0*	6,751
240	Min	*375*	4,000	4,375		2,000	6,375		*751*	7,126		*0*	7,126
255	Min	*375*	4,250	4,625		2,125	6,750		*751*	7,501		*0*	7,501
270	Min	*375*	*4,250*	*4,625*		*2,125*	*6,750*		751	*7,501*		0	*7,501*

Increased Wind Speed (SSW direction) Line of Fire with Previously Approved Development

Narrative: Fire as a line of fire west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.



SSWat40Line

	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3A	60 min (remains)

* Evacuation Point is impacted at 90 min. but the route from the Evac. Pt. is impacted at 60 min.

Priority Area to Evacuate

SSW Line at 40 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open

3. SSWat40Line - Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1.5 hour to evacuate 1134 DU (2,653 vehicles) from the priority evacuation area of the Project
2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

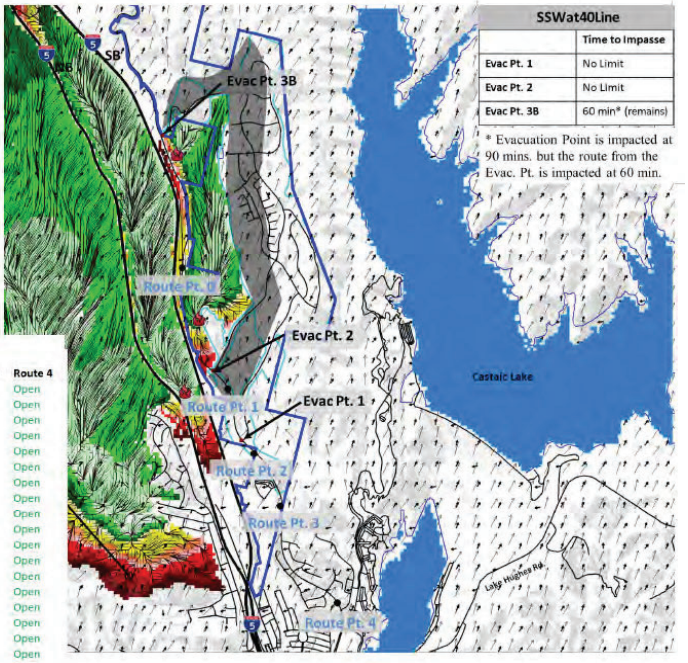
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Vehicles that need to evacuate	342	1,418	1,760	700	2,460	250	2,653	0	2,653
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour per lane (Vphpl) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour per lane (Vphpl) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time Limits	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	386	1,386	*0*	1,386
45	Min	375	750	1,125	375	1,500	*386*	1,886	*0*	1,886
60	Min	*375*	1,000	1,375	500	1,875	*386*	2,261	*0*	2,261
75	Min	*375*	1,250	1,625	625	2,250	*386*	2,636	*0*	2,636
90	Min	*375*	1,500	1,875	750	2,625	*386*	3,011	*0*	3,011
105	Min	*375*	1,750	2,125	875	3,000	*386*	3,386	*0*	3,386
120	Min	*375*	2,000	2,375	1,000	3,375	*386*	3,761	*0*	3,761
135	Min	*375*	2,250	2,625	1,125	3,750	*386*	4,136	*0*	4,136
150	Min	*375*	2,500	2,875	1,250	4,125	*386*	4,511	*0*	4,511
165	Min	*375*	*2,500*	*2,875*	*1,250*	*4,125*	*386*	*4,511*	*0*	*4,511*

Increased Wind Speed (SSW direction)
Line of Fire with Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side of the Project Site.



SSW Line at 40 mph Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open

3. SSWat40Line - Partial Creek Avoidance Alt.

Results: 2.25 hours to evacuate 1,485 DU (3,475 vehicles) from the priority evacuation area of the Project
4.25 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

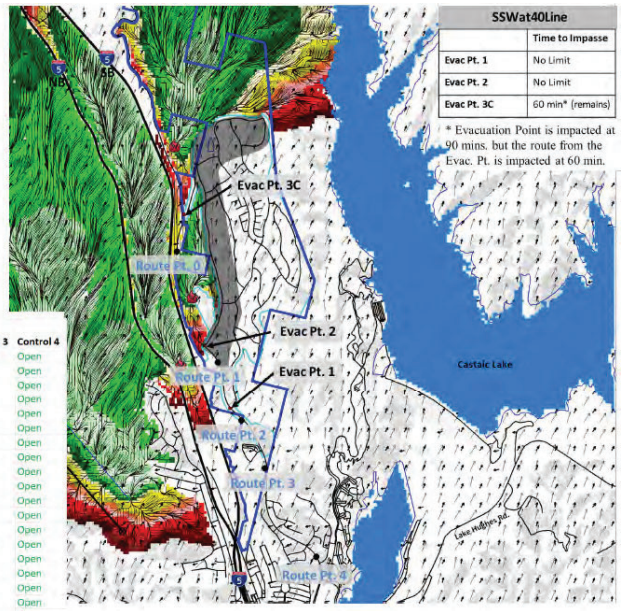
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Vehicles that need to evacuate	**375**	**2,000**	**2,375**	**1,100**	**3,475**	**0**	**3,475**	**0**	**3,475**
Number of lanes at evacuation point	1	2	--	1	--	2	--	**1**	--
Vehicles per hour per lane (Vphpl) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour per lane (Vphpl) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time imits	Closes at 60 Min, Ridge Route Pt 0 closes at 60 Min	No limit	No limit	No limit	No limit	No limit	No limit	--	--

Vehicle Evacuation Shown in 15 Minute Intervals

Time	A No. of Vehicles Passing Through Evac Pt. 3	B No. of Vehicles Passing Through Evac Pt. 2	A+B=C Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	D No. of Vehicles Passing Through Evac Pt. 1	C+D=E Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	F No. of Vehicles from Project AH Passing through Ridge Rt south of B St	E+F=G Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	H No. of Vehicles from NH Passing Through Ridge Rt	G+H=I Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	250	750	*0*	750
30 Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45 Min	**375**	750	1,125	375	1,500	750	2,250	*0*	2,250
60 Min	*375*	1,000	1,375	500	1,875	751	2,626	*0*	2,626
75 Min	*375*	1,250	1,625	625	2,250	*751*	3,001	*0*	3,001
90 Min	*375*	1,500	1,875	750	2,625	*751*	3,376	*0*	3,376
105 Min	*375*	1,750	2,125	875	3,000	*751*	3,751	*0*	3,751
120 Min	*375*	**2,000**	**2,375**	1,000	3,375	*751*	4,126	*0*	4,126
135 Min	*375*	2,250	2,625	**1,125**	**3,750**	*751*	4,501	*0*	4,501
150 Min	*375*	2,500	2,875	1,250	4,125	*751*	4,876	*0*	4,876
165 Min	*375*	2,750	3,125	1,375	4,500	*751*	5,251	*0*	5,251
180 Min	*375*	3,000	3,375	1,500	4,875	*751*	5,626	*0*	5,626
195 Min	*375*	3,250	3,625	1,625	5,250	*751*	6,001	*0*	6,001
210 Min	*375*	3,500	3,875	1,750	5,625	*751*	6,376	*0*	6,376
225 Min	*375*	3,750	4,125	1,875	6,000	*751*	6,751	*0*	6,751
240 Min	*375*	4,000	4,375	2,000	6,375	*751*	7,126	*0*	7,126
255 Min	*375*	4,250	4,625	2,125	6,750	*751*	**7,501**	*0*	**7,501**
270 Min	*375*	*4,250*	*4,625*	*2,250*	*6, 75*	*751*	*7,626*	*0*	*7,626*

Increased Wind Speed (SSW direction)
Line of Fire with Partial Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a SSW Wind at 40 mph with the head fire moving to the northeast (branching to the north and south). At 30 min (elapsed time) fire spots over the NB I-5. The fire continues to burn NNE and spots over the SB I-5 impacting Ridge Route north of Evac Point 2 at 60 min (elapsed time). The fire spots over the SB I-5 south of Evac Point 3A at 90 min (elapsed time) continues to burn to the north to the north and south along the west side and moves to the east at the top of the Project Site.



SSWat40Line	Time to Impasse
Evac Pt. 1	No Limit
Evac Pt. 2	No Limit
Evac Pt. 3C	60 min* (remains)

* Evacuation Point is impacted at 90 mins. but the route from the Evac. Pt. is impacted at 60 min.

SSW Line at 40 mph Partial Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Control 0	Control 1	Control 2	Control 3	Control 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open

Priority Area to Evacuate

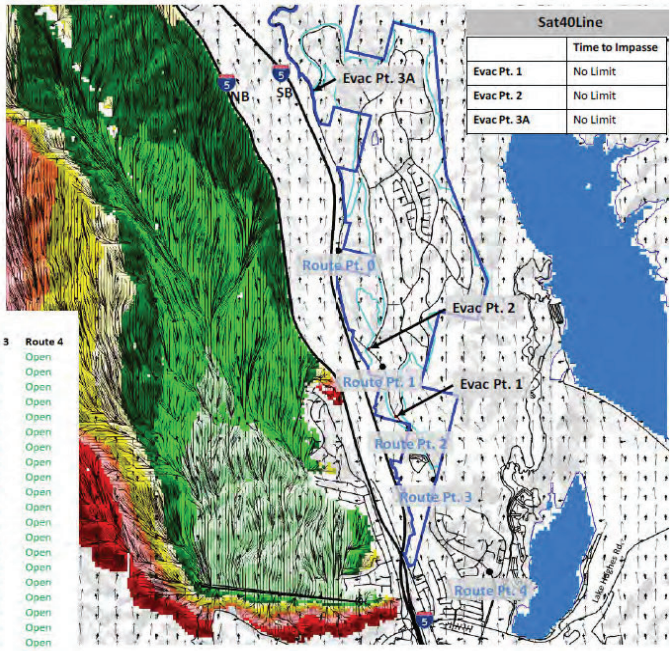
4. Sat40Line - Previously Approved Plan

Results: 3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Rt. Pt 1	Evac Pt. 1	Ridge Rt. Pt 2	Project Affordable Housing	Ridge Rt. Pt 3	Northlake Hills	Ridge Rt. Pt 4
Number of vehicles to evacuate	1,655	3,310	4,965	1,655	6,620	751	7,371	0	7,371
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit
Vehicle Evacuation Shown in 15 Minute Intervals									
	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	250	750	*0*	750
30 Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45 Min	375	750	1,125	375	1,500	750	2,250	*0*	2,250
60 Min	500	1,000	1,500	500	2,000	751	2,751	*0*	2,751
75 Min	625	1,250	1,875	625	2,500	*751*	3,251	*0*	3,251
90 Min	750	1,500	2,250	750	3,000	*751*	3,751	*0*	3,751
105 Min	875	1,750	2,625	875	3,500	*751*	4,251	*0*	4,251
120 Min	1,000	2,000	3,000	1,000	4,000	*751*	4,751	*0*	4,751
135 Min	1,125	2,250	3,375	1,125	4,500	*751*	5,251	*0*	5,251
150 Min	1,250	2,500	3,750	1,250	5,000	*751*	5,751	*0*	5,751
165 Min	1,375	2,750	4,125	1,375	5,500	*751*	6,251	*0*	6,251
180 Min	1,500	3,000	4,500	1,500	6,000	*751*	6,751	*0*	6,751
195 Min	1,625	3,250	4,875	1,625	6,500	*751*	7,251	*0*	7,251
210 Min	1,750	3,500	4,875	1,750	6,625	*751*	7,376	*0*	7,376
225 Min	*1,750*	*3,500*	*4,875*	*1,750*	6,625	*751*	*7,376*	*0*	*7,376*

Wind Speed 40 mph (S direction) with Previously Approved Development

Narrative: Fire as a line of fire west of the northbound I-5 under a South Wind at 40 mph with the head fire moving to the north (branching to the west but holding at the freeway on the east). The wind direction and location of the fire does not have a high probability of spotting over the freeway in the vicinity of the Project Site. The program did not provide spots and they were not added manually.



South Line at 40 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

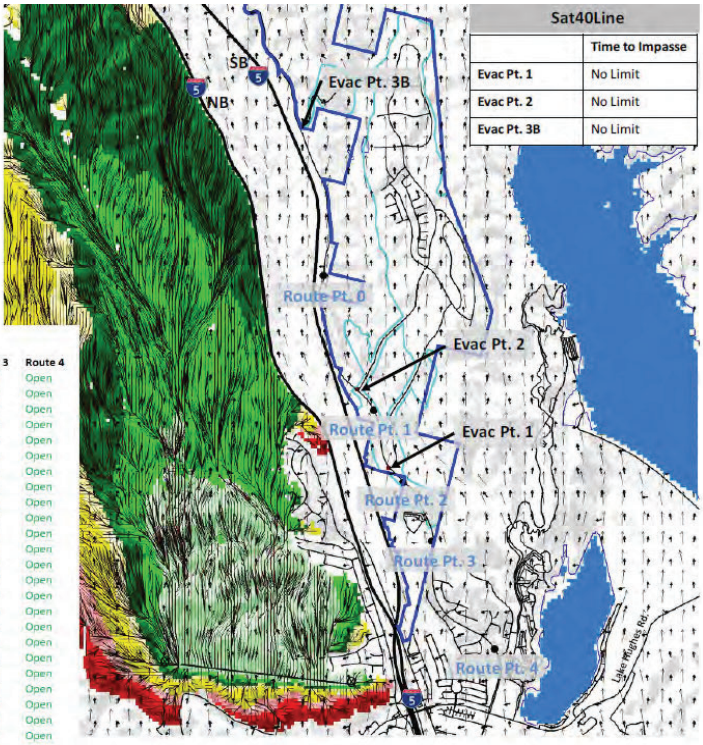
4. Sat40Line - Creek Avoidance Alt.

Results: 2 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Rt. Pt 1	Evac Pt. 1	Ridge Rt. Pt 2	Project Affordable Housing	Ridge Rt. Pt 3	Northlake Hills	Ridge Rt. Pt 4
Number of vehicles to evacuate	965	1,931	2,896	965	3,861	386	4,247	0	4,247
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit
Vehicle Evacuation Shown in 15 Minute Intervals									
	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	250	750	*0*	750
30 Min	250	500	750	250	1,000	386	1,386	*0*	1,386
45 Min	375	750	1,125	375	1,500	*386*	1,886	*0*	1,886
60 Min	500	1,000	1,500	500	2,000	*386*	2,386	*0*	2,386
75 Min	625	1,250	1,875	625	2,500	*386*	2,886	*0*	2,886
90 Min	750	1,500	2,250	750	3,000	*386*	3,386	*0*	3,386
105 Min	875	1,750	2,625	875	3,500	*386*	3,886	*0*	3,886
120 Min	1,000	2,000	3,000	1,000	4,000	*386*	4,386	*0*	4,386
135 Min	*1,000*	*2,000*	*3,000*	*1,000*	*4,000*	386	*4,386*	*0*	*4,386*

Wind Speed 40 mph (S direction) with Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a South Wind at 40 mph with the head fire moving to the north (branching to the west but holding at the freeway on the east). The wind direction and location of the fire does not have a high probability of spotting over the freeway in the vicinity of the Project Site. The program did not provide spots and they were not added manually.



South Line at 40 mph Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open

4. Sat40Line - Partial Creek Avoidance Alt.

Results 3 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)

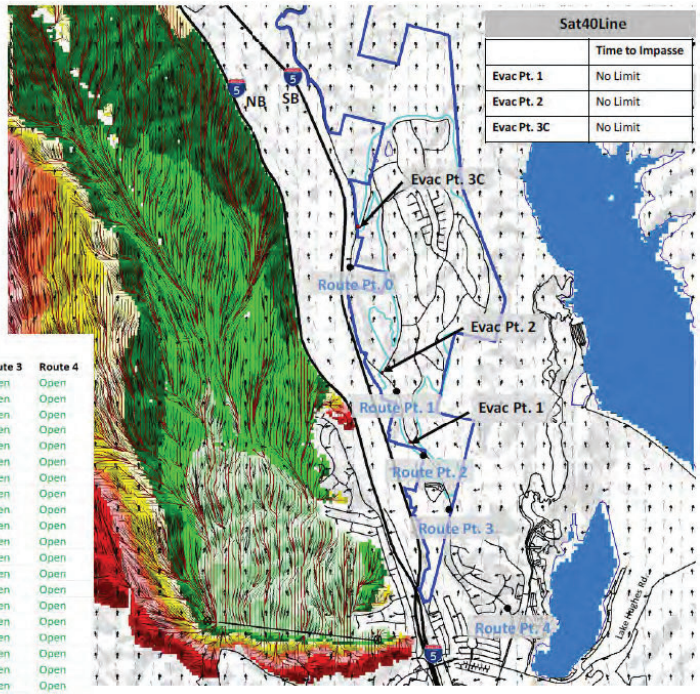
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	**1,655**	**3,310**	**4,965**	**1,655**	**6,620**	**751**	**7,371**	**0**	**7,371**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45	Min	375	750	1,125	375	1,500	750	2,250	*0*	2,250
60	Min	500	1,000	1,500	500	2,000	751	2,751	*0*	2,751
75	Min	625	1,250	1,875	625	2,500	*751*	3,251	*0*	3,251
90	Min	750	1,500	2,250	750	3,000	*751*	3,751	*0*	3,751
105	Min	875	1,750	2,625	875	3,500	*751*	4,251	*0*	4,251
120	Min	1,000	2,000	3,000	1,000	4,000	*751*	4,751	*0*	4,751
135	Min	1,125	2,250	3,375	1,125	4,500	*751*	5,251	*0*	5,251
150	Min	1,250	2,500	3,750	1,250	5,000	*751*	5,751	*0*	5,751
165	Min	1,375	2,750	4,125	1,375	5,500	*751*	6,251	*0*	6,251
180	Min	1,500	3,000	4,500	1,500	6,000	*751*	6,751	*0*	6,751
195	Min	1,625	3,250	4,875	1,625	6,500	*751*	7,251	*0*	7,251
210	Min	1,750	3,500	5,250	1,750	7,000	*751*	**7,751**	*0*	**7,751**
225	Min	*1,750*	*3,500*	*5,250*	*1,750*	*7,000*	751	*7,751*	0	*7,751*

Wind Speed 40 mph (S direction)
with Partial Creek Avoidance Development

Narrative: Fire as a line of fire west of the northbound I-5 under a South Wind at 40 mph with the head fire moving to the north (branching to the west but holding at the freeway on the east). The wind direction and location of the fire does not have a high probability of spotting over the freeway in the vicinity of the Project Site. The program did not provide spots and they were not added manually.



South Line at 40 mph Partial Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open

5. FreewaySpotsat40 - Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 2.5 hours to evacuate 822 DU (1,924 vehicles) from the priority evacuation area of the Project
3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	484	997	1,482	442	1,924	0	1,924	0	1,924
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

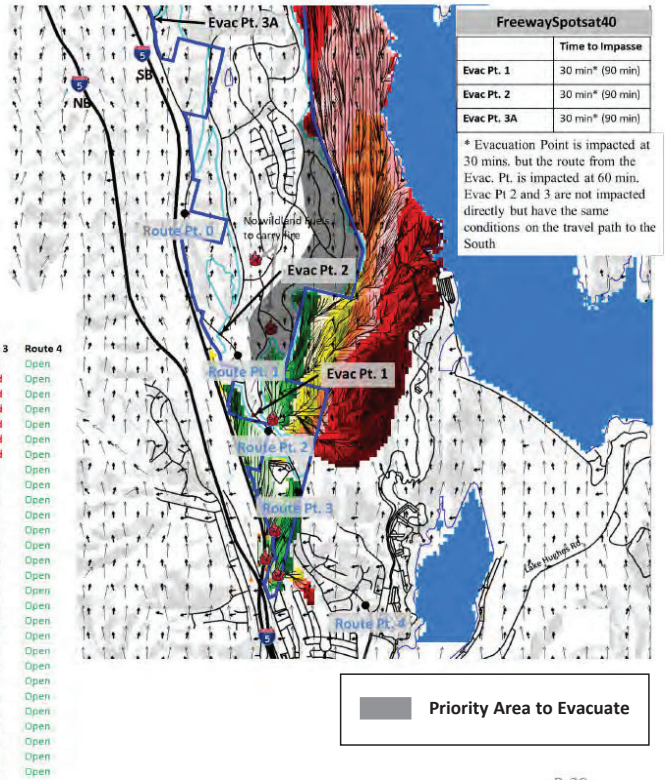
		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	0	750
30	Min	125	250	375	125	500	250	750	0	750
45	Min	125	250	375	125	500	250	750	0	750
60	Min	125	250	375	125	500	250	750	0	750
75	Min	125	250	375	125	500	250	750	0	750
90	Min	125	250	375	125	500	250	750	0	750
105	Min	125	250	375	125	500	250	750	0	750
120	Min	250	500	750	250	1,000	500	1,500	0	1,500
135	Min	375	750	1,125	375	1,500	750	2,250	0	2,250
150	Min	500	1,000	1,500	500	2,000	751	2,751	0	2,751
165	Min	625	1,250	1,875	625	2,500	751	3,251	0	3,251
180	Min	750	1,500	2,250	750	3,000	751	3,751	0	3,751
195	Min	875	1,750	2,625	875	3,500	751	4,251	0	4,251
210	Min	1,000	2,000	3,000	1,000	4,000	751	4,751	0	4,751
225	Min	1,125	2,250	3,375	1,125	4,500	751	5,251	0	5,251
240	Min	1,250	2,500	3,750	1,250	5,000	751	5,751	0	5,751
255	Min	1,375	2,750	4,125	1,375	5,500	751	6,251	0	6,251
270	Min	1,500	3,000	4,500	1,500	6,000	751	6,751	0	6,751
285	Min	1,625	3,250	4,875	1,625	6,500	751	7,251	0	7,251
300	Min	1,750	3,500	5,250	1,750	7,000	751	7,751	0	7,751
315	Min	1,750	3,500	5,250	1,750	7,000	751	7,751	0	7,751

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Previously Approved Development

Narrative: Fire begins as a series of spot fires on the SB I-5 north of the NB/SB crossover. The fires is driven by a South wind at 40 mph. The fire was made to spot over Ridge Route in 30 min. It was made to spot again in another 30 min (60 min. elapsed time) to the north and a final time in another 30 min. (90 min. elapsed time). No flame propagation within the development area occurs. Ridge Route will be impacted for approximately 90 minutes for all Evac Points beginning 30 min into the scenario. Once the fire has passed this impact points, all Evac Points will reopen and remain open.

Freeway Spot at 40 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
45	0:45	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
60	1:00	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
75	1:15	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
90	1:30	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
105	1:45	Closed	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open



5. FreewaySpotsat40 - Creek Avoidance Alt.

Results: 3.25 hours to evacuate 910 DU (2,129 vehicles) from the priority evacuation area of the Project
4.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

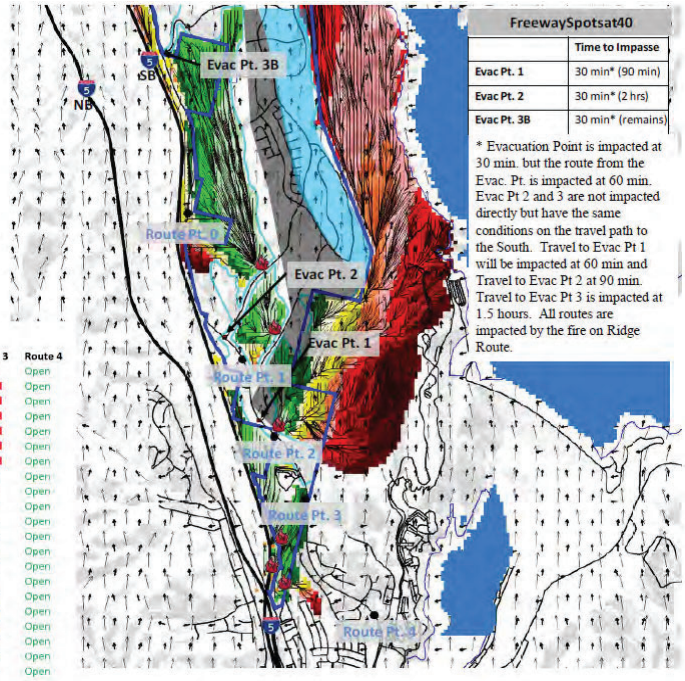
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	122	1,119	1,241	792	2,033	97	2,129	0	2,129
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 30 Min	Closes at 30 Min, reopens at 150 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	0	750
30	Min	125	250	375	125	500	250	750	0	750
45	Min	125	250	375	125	500	250	750	0	750
60	Min	125	250	375	125	500	250	750	0	750
75	Min	125	250	375	125	500	250	750	0	750
90	Min	125	250	375	125	500	250	750	0	750
105	Min	125	250	375	125	500	250	750	0	750
120	Min	125	250	375	250	625	386	1,011	0	1,011
135	Min	125	250	375	375	750	386	1,136	0	1,136
150	Min	125	500	625	500	1,125	386	1,511	0	1,511
165	Min	125	750	875	625	1,500	386	1,886	0	1,886
180	Min	125	1,000	1,125	750	1,875	386	2,261	0	2,261
195	Min	125	1,250	1,375	875	2,250	386	2,636	0	2,636
210	Min	125	1,500	1,625	1,000	2,625	386	3,011	0	3,011
225	Min	125	1,750	1,875	1,125	3,000	386	3,386	0	3,386
240	Min	125	2,000	2,125	1,250	3,375	386	3,761	0	3,761
255	Min	125	2,250	2,375	1,375	3,750	386	4,136	0	4,136
270	Min	125	2,500	2,625	1,500	4,125	386	4,511	0	4,511
285	Min	125	2,500	2,625	1,500	4,125	386	4,511	0	4,511

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Creek Avoidance Development

Narrative: Fire begins as a series of spot fires on the SB I-5 north of the NB/SB crossover. The fires is driven by a South wind at 40 mph. The fire was made to spot over Ridge Route in 30 min. It was made to spot again in another 30 min (60 min. elapsed time) to the north and a final time in another 30 min. (90 min. elapsed time). Ridge Route will be impacted for approximately 90 minutes for all Evac Points beginning 30 min into the scenario. Once the fire has passed this impact points, all Evac Points will reopen and remain open.



FreewaySpotsat40

	Time to Impasse
Evac Pt. 1	30 min* (90 min)
Evac Pt. 2	30 min* (2 hrs)
Evac Pt. 3B	30 min* (remains)

* Evacuation Point is impacted at 30 min. but the route from the Evac. Pt. is impacted at 60 min. Evac Pt 2 and 3 are not impacted directly but have the same conditions on the travel path to the South. Travel to Evac Pt 1 will be impacted at 60 min and Travel to Evac Pt 2 at 90 min. Travel to Evac Pt 3 is impacted at 1.5 hours. All routes are impacted by the fire on Ridge Route.

Freeway Spot at 40 mph Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
45	0:45	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
60	1:00	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
75	1:15	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
90	1:30	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
105	1:45	Closed	Closed	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
120	2:00	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Closed	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open

An early shelter in place order is likely with evacuation after the fire front has cleared Evac Pt. 1 and Route Pts 2 and 3.

Priority Area to Evacuate

5. FreewaySpotsat40 - Partial Creek Avoidance Alt.

Results: 2.75 hours to evacuate 1,132 DU (2,649 vehicles) from the priority evacuation area of the Project 5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	**633**	**1,233**	**1,866**	**596**	**2,462**	**188**	**2,649**	**0**	**2,649**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	Closes at 30 Min, reopens at 120 Min	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

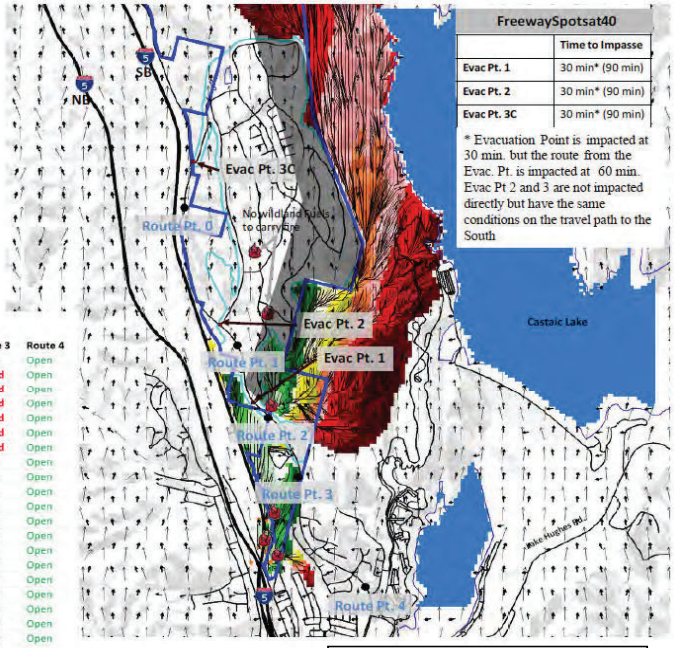
Time	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	**250**	750	*0*	750
30 Min	*125*	*250*	*375*	*125*	*500*	*250*	*750*	*0*	*750*
45 Min	*125*	*250*	*375*	*125*	*500*	*250*	*750*	*0*	*750*
60 Min	*125*	*250*	*375*	*125*	*500*	*250*	*750*	*0*	*750*
75 Min	*125*	*250*	*375*	*125*	*500*	*250*	*750*	*0*	*750*
90 Min	*125*	*250*	*375*	*125*	*500*	*250*	*750*	*0*	*750*
105 Min	*125*	*250*	*375*	*125*	*500*	*250*	*750*	*0*	*750*
120 Min	250	500	750	250	1,000	500	1,500	*0*	1,500
135 Min	375	750	1,125	375	1,500	750	2,250	*0*	2,250
150 Min	500	1,000	1,500	500	2,000	751	2,751	*0*	2,751
165 Min	**625**	**1,250**	**1,875**	**625**	**2,500**	*751*	3,251	*0*	3,251
180 Min	750	1,500	2,250	750	3,000	*751*	3,751	*0*	3,751
195 Min	875	1,750	2,625	875	3,500	*751*	4,251	*0*	4,251
210 Min	1,000	2,000	3,000	1,000	4,000	*751*	4,751	*0*	4,751
225 Min	1,125	2,250	3,375	1,125	4,500	*751*	5,251	*0*	5,251
240 Min	1,250	2,500	3,750	1,250	5,000	*751*	5,751	*0*	5,751
255 Min	1,375	2,750	4,125	1,375	5,500	*751*	6,251	*0*	6,251
270 Min	1,500	3,000	4,500	1,500	6,000	*751*	6,751	*0*	6,751
285 Min	1,625	3,250	4,875	1,625	6,500	*751*	7,251	*0*	7,251
300 Min	1,750	3,500	5,250	1,750	7,000	*751*	7,751	*0*	7,751
315 Min	*1,750*	*3,500*	*5,250*	*1,750*	*7,000*	*751*	*7,751*	*0*	*7,751*

Spot Fire off Freeway NB (Wind S direction @ 40 mph) with Partial Creek Avoidance Development

Narrative: Fire begins as a series of spot fires on the SB I-5 north of the NB/SB crossover. The fires is driven by a South wind at 40 mph. The fire was made to spot over Ridge Route in 30 min. It was made to spot again in another 30 min (60 min. elapsed time) to the north and a final time in another 30 min. (90 min. elapsed time). No flame propagation within the development area occurs. Ridge Route will be impacted for approximately 90 minutes for all Evac Points beginning 30 min into the scenario. Once the fire has passed this impact points, all Evac Points will reopen and remain open.

Freeway Spot at 40 mph Partial Avoid — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
45	0:45	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
60	1:00	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
75	1:15	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
90	1:30	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
105	1:45	Closed	Closed	n/a	n/a	Closed	Closed	Closed	Closed	Closed	Open
120	2:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open



6. LakeSpotsat40 - Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1.25 hours to evacuate 898 DU (2,101 vehicles) from the priority evacuation area of the Project
3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

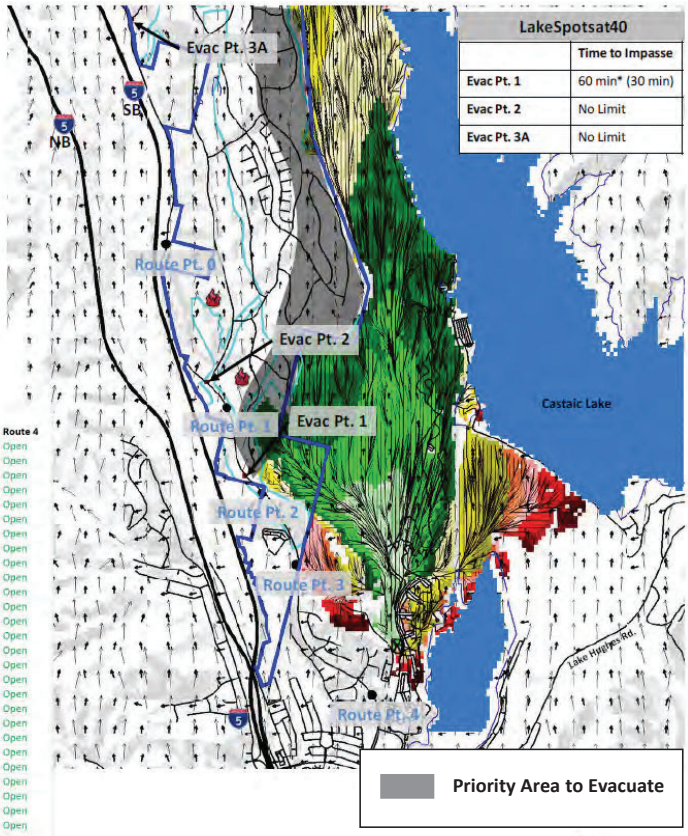
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	510	1,032	1,542	370	1,912	189	2,101	0	2,101
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	No Limit	No limit	Closes at 240 Min, reopens at 300 Min	Closes at 60 Min, reopens at 90 Min	Closes at 240 Min, reopens at 300 Min	Closes at 240 Min, reopens at 300 Min	Closes at 240 Min, reopens at 300 Min	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375	125	500	250	750	*0*	750
30	Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45	Min	375	750	1,125	375	1,500	750	2,250	*0*	2,250
60	Min	500	1,000	1,500	*375*	1,875	751	2,626	*0*	2,626
75	Min	625	1,250	1,875	*375*	2,250	*751*	3,001	*0*	3,001
90	Min	750	1,500	2,250	500	2,750	*751*	3,501	*0*	3,501
105	Min	875	1,750	2,625	625	3,250	*751*	4,001	*0*	4,001
120	Min	1,000	2,000	3,000	750	3,750	*751*	4,501	*0*	4,501
135	Min	1,125	2,250	3,375	875	4,250	*751*	5,001	*0*	5,001
150	Min	1,250	2,500	3,750	1,000	4,750	*751*	5,501	*0*	5,501
165	Min	1,375	2,750	4,125	1,125	5,250	*751*	6,001	*0*	6,001
180	Min	1,500	3,000	4,500	1,250	5,750	*751*	6,501	*0*	6,501
195	Min	1,625	3,250	4,875	1,375	6,250	*751*	7,001	*0*	7,001
210	Min	1,750	3,500	5,250	1,500	6,750	*751*	7,501	*0*	7,501
225	Min	*1,750*	*3,500*	*5,250*	*1,500*	*6,750*	751	*7,501*	0	*7,501*

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Previously Approved Development

Narrative: Fire begins as spot fires in the Recreation Area under a South Wind at 40 mph with the head fire moving to the north (branching to the east and west). Fire does not spot over roadways on the west side due to development. Fire continues to burn to the north on the east side of the Project Site.



Lake Spots at 40 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Closed	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Closed	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Closed	Closed	Closed	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

6. LakeSpotsat40 - Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 2.5 hours to evacuate 1,650 DU (3,861 vehicles) from the priority evacuation area of the Project
2.5 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

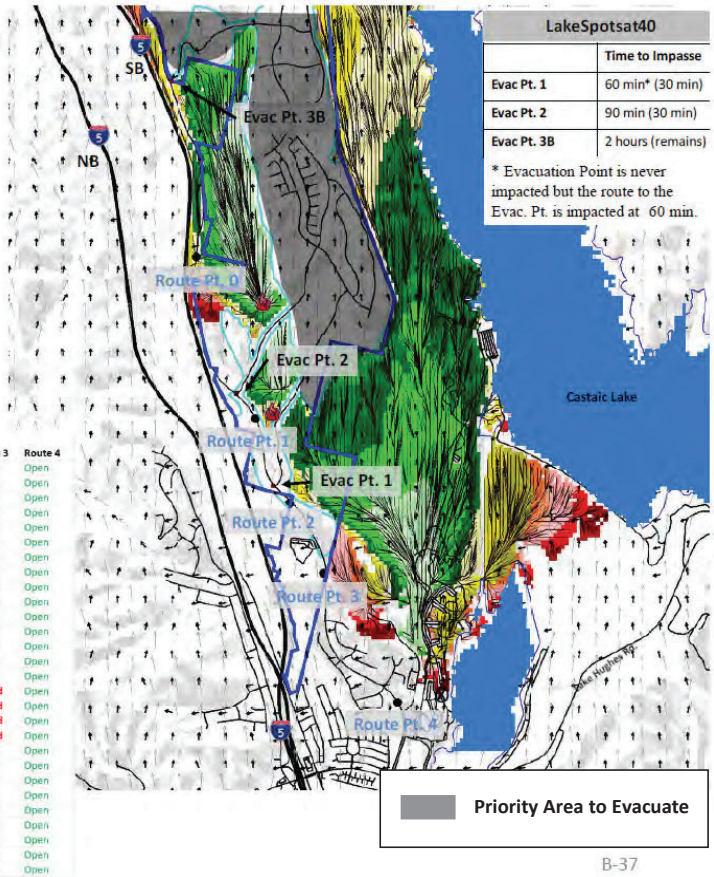
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1		Evac Pt. 1	Ridge Route Pt. 2		Project Affordable Housing	Ridge Route Pt. 3		Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	550	1,188	1,738		295	2,033		0	2,033		0	2,033
Number of lanes at evacuation point	1	2	--		1	--		2	--		1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--		1,600	--		1,600	--		1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--		500	--		1,000	--		500	--
Vehicles per 15 min	125	250	--		125	--		250	--		125	--
Time limit	Closes at 120 Min.	Closes at 90 Min, reopens at 120 Min	Closes at 240 Min, reopens at 300 Min		Closes at 60 Min, reopens at 90 Min	Closes at 240 Min, reopens at 300 Min		Closes at 240 Min, reopens at 300 Min	Closes at 240 Min, reopens at 300 Min		--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C		D	C+D=E		F	E+F=G		H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1		No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2		No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3		No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	125	250	375		125	500		250	750		0	750
30	Min	250	500	750		250	1,000		386	1,386		0	1,386
45	Min	375	750	1,125		375	1,500		386	1,886		0	1,886
60	Min	500	1,000	1,500		375	1,875		386	2,261		0	2,261
75	Min	625	1,250	1,875		375	2,250		386	2,636		0	2,636
90	Min	750	1,250	2,000		500	2,500		386	2,886		0	2,886
105	Min	875	1,250	2,125		625	2,750		386	3,136		0	3,136
120	Min	875	1,500	2,375		750	3,125		386	3,511		0	3,511
135	Min	875	1,750	2,625		875	3,500		386	3,886		0	3,886
150	Min	875	2,000	2,875		1,000	3,875		386	4,261		0	4,261
165	Min	875	2,000	2,875		1,000	3,875		386	4,261		0	4,261

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Creek Avoidance Development

Narrative: Fire begins as spot fires in the Recreation Area under a South Wind at 40 mph with the head fire moving to the north (branching to the east and west). At 60 min (elapsed time) fire spots over the access road to Evac Point 1, closing the access for 30 minutes. The fire on the west continues to burn north and spots over the access to Evac Point 2 at 90 min (elapsed time) and continues to burn to the north on both sides of the Project Site.



Lake Spots at 40 mph Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
60	1:00	Closed	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
75	1:15	Closed	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Closed	n/a	Open	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Closed	n/a	Open	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
255	4:15	Open	Open	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
270	4:30	Open	Open	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
285	4:45	Open	Open	n/a	Closed	n/a	Closed	Closed	Closed	Closed	Open
300	5:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open

6. LakeSpotsat40 - Partial Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1.5 hours to evacuate 1,056 DU (2,471 vehicles) from the priority evacuation area of the Projec
3.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

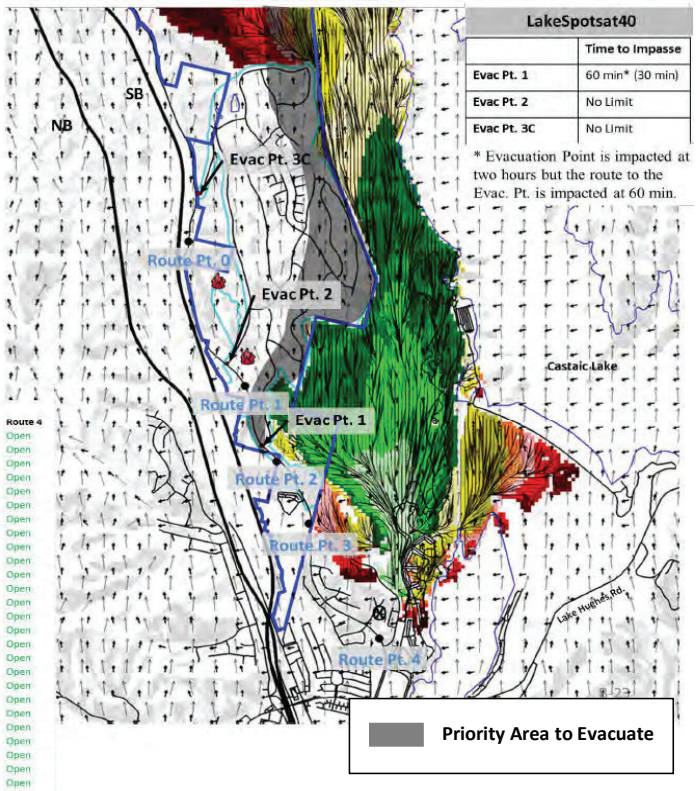
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	**623**	**1,280**	**1,903**	**380**	**2,283**	**188**	**2,471**	**0**	**2,471**
Number of lanes at evacuation point	1	2	--	1	--	2	--		--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	No limit	No limit	Closes at 240 Min, reopens at 300 Min	Closes at 60 Min, reopens at 90 Min	Closes at 240 Min, reopens at 300 Min	Closes at 240 Min, reopens at 300 Min	Closes at 240 Min, reopens at 300 Min	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	125	250	375	125	500	250	750	*0*	750
30 Min	250	500	750	250	1,000	500	1,500	*0*	1,500
45 Min	375	750	1,125	375	1,500	750	2,250	*0*	2,250
60 Min	500	1,000	1,500	*375*	1,875	751	2,626	*0*	2,626
75 Min	**625**	1,250	1,875	*375*	2,250	*751*	3,001	*0*	3,001
90 Min	750	**1,500**	**2,250**	**500**	**2,750**	*751*	3,501	*0*	3,501
105 Min	875	1,750	2,625	625	3,250	*751*	4,001	*0*	4,001
120 Min	1,000	2,000	3,000	750	3,750	*751*	4,501	*0*	4,501
135 Min	1,125	2,250	3,375	875	4,250	*751*	5,001	*0*	5,001
150 Min	1,250	2,500	3,750	1,000	4,750	*751*	5,501	*0*	5,501
165 Min	1,375	2,750	4,125	1,125	5,250	*751*	6,001	*0*	6,001
180 Min	1,500	3,000	4,500	1,250	5,750	*751*	6,501	*0*	6,501
195 Min	1,625	3,250	4,875	1,375	6,250	*751*	7,001	*0*	7,001
210 Min	1,750	3,500	5,250	1,500	6,750	*751*	**7,501**	*0*	**7,501**
225 Min	*1,750*	*3,500*	*5,250*	*1,500*	*6,750*	*751*	*7,501*	*0*	*7,501*

Origin with the County Recreation Area (Wind S direction @ 40 mph) with Partial Creek Avoidance Development

Narrative: Fire begins as spot fires in the Recreation Area under a South Wind at 40 mph with the head fire moving to the north (branching to the east and west). Fire does not spot over roadways on the west side due to development. Fire continues to burn to the north on the east side of the Project Site.



Lake Spots at 40 mphParital Creek Avoidance — Evacuation to the South

	Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
30	0:30 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
45	0:45 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
60	1:00 Closed	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
75	1:15 Closed	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
90	1:30 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
105	1:45 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
120	2:00 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
135	2:15 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
150	2:30 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
165	2:45 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
180	3:00 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
195	3:15 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
210	3:30 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
225	3:45 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
240	4:00 Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
255	4:15 Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
270	4:30 Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
285	4:45 Open	Open	n/a	n/a	Open	Open	Closed	Closed	Closed	Open
300	5:00 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
315	5:15 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
330	5:30 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
345	5:45 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
360	6:00 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
375	6:15 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
390	6:30 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
405	6:45 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open
420	7:00 Open	Open	n/a	n/a	Open	Open	Open	Open	Open	Open

7. NEat70Line - Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1 hour to evacuate 570 DU (1,334 vehicles) from the priority evacuation area of the Project
4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

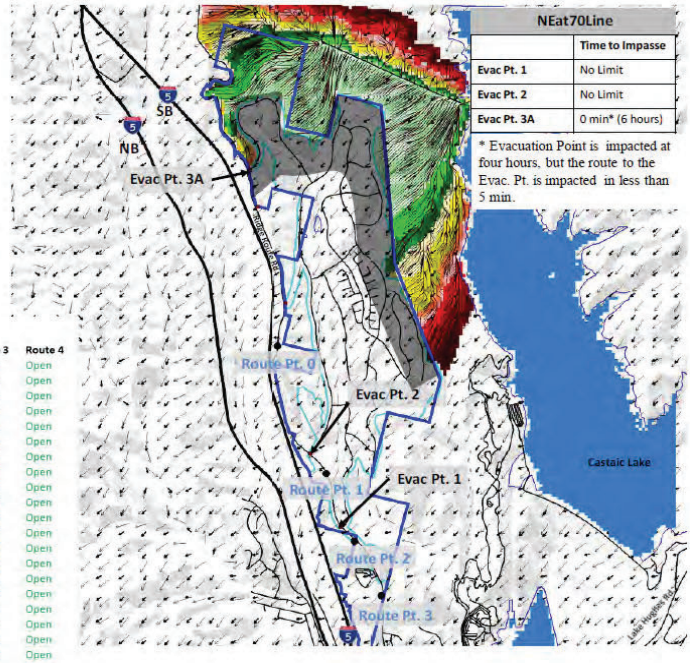
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	927	927	408	1,334	0	1,334	0	1,334
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed until 300 Min after fire started	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	0	250	250	125	375	250	625	0	625
30 Min	0	500	500	250	750	500	1,250	0	1,250
45 Min	0	750	750	375	1,125	750	1,875	0	1,875
60 Min	0	1,000	1,000	500	1,500	751	2,251	0	2,251
75 Min	0	1,250	1,250	625	1,875	751	2,626	0	2,626
90 Min	0	1,500	1,500	750	2,250	751	3,001	0	3,001
105 Min	0	1,750	1,750	875	2,625	751	3,376	0	3,376
120 Min	0	2,000	2,000	1,000	3,000	751	3,751	0	3,751
135 Min	0	2,250	2,250	1,125	3,375	751	4,126	0	4,126
150 Min	0	2,500	2,500	1,250	3,750	751	4,501	0	4,501
165 Min	0	2,750	2,750	1,375	4,125	751	4,876	0	4,876
180 Min	0	3,000	3,000	1,500	4,500	751	5,251	0	5,251
195 Min	0	3,250	3,250	1,625	4,875	751	5,626	0	5,626
210 Min	0	3,500	3,500	1,750	5,250	751	6,001	0	6,001
225 Min	0	3,750	3,750	1,875	5,625	751	6,376	0	6,376
240 Min	0	4,000	4,000	2,000	6,000	751	6,751	0	6,751
255 Min	0	4,250	4,250	2,125	6,375	751	7,126	0	7,126
270 Min	0	4,500	4,500	2,250	6,750	751	7,501	0	7,501
285 Min	0	4,500	4,500	2,250	6,750	751	7,501	0	7,501

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled.



NE at 70 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

7. NEat70Line - Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1.5 hours to evacuate 826 DU (1,932 vehicles) from the priority evacuation area of the Project
2.5 hours to evacuate 1,815 DU entire Project (4,247 vehicles)

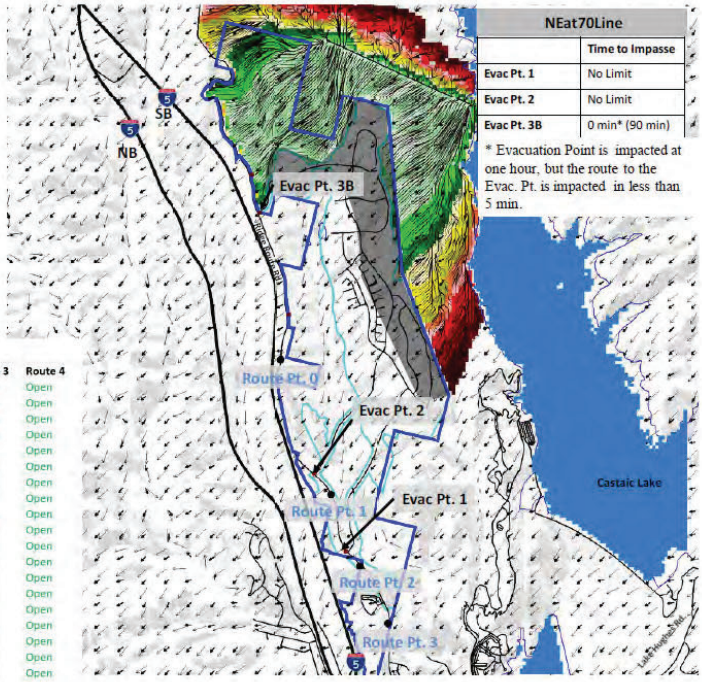
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	1,267	1,069	665	1,932	0	1,932	0	1,932
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed until 105 Min after the fire started	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

Time	A No. of Vehicles Passing Through Evac Pt. 3	B No. of Vehicles Passing Through Evac Pt. 2	A+B=C Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	D No. of Vehicles Passing Through Evac Pt. 1	C+D=E Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	F No. of Vehicles from Project AH Passing through Ridge Rt south of B St	E+F=G Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	H No. of Vehicles from NH Passing Through Ridge Rt	G+H=I Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	*0*	250	250	125	375	250	625	*0*	625
30 Min	*0*	500	500	250	750	386	1,136	*0*	1,136
45 Min	*0*	750	750	375	1,125	*386*	1,511	*0*	1,511
60 Min	*0*	1,000	1,000	500	1,500	*386*	1,886	*0*	1,886
75 Min	*0*	1,250	1,250	625	1,875	*386*	2,261	*0*	2,261
90 Min	*0*	1,500	1,500	750	2,250	*386*	2,636	*0*	2,636
105 Min	125	1,750	1,875	875	2,750	*386*	3,136	*0*	3,136
120 Min	250	2,000	2,250	1,000	3,250	*386*	3,636	*0*	3,636
135 Min	375	2,250	2,625	1,125	3,750	*386*	4,136	*0*	4,136
150 Min	500	2,500	3,000	1,250	4,250	*386*	4,636	*0*	4,636
165 Min	*500*	*2,500*	*3,000*	*1,250*	*4,250*	*386*	*4,636*	*0*	*4,636*

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled.



NE at 70 mph Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
255	4:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
270	4:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open

7. NEat70Line - Partial Creek Avoidance Alt.

Results: 4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

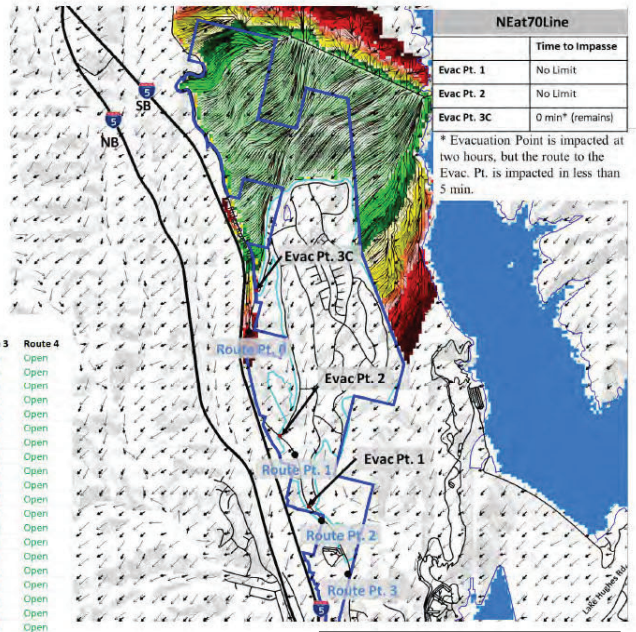
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	**0**	**4,423**	**4,423**	**2,197**	**6,620**	**751**	**7,371**	**0**	**7,371**
Number of lanes at evacuation point	1	2	--	1	--	2	--		--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed, Ridge Route 0 closes at 60 Min	No limit	No limit	No limit	No limit	No limit	No limit	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	*0*	250	250	125	375	250	625	*0*	625
30 Min	*0*	500	500	250	750	500	1,250	*0*	1,250
45 Min	*0*	750	750	375	1,125	750	1,875	*0*	1,875
60 Min	*0*	1,000	1,000	500	1,500	751	2,251	*0*	2,251
75 Min	*0*	1,250	1,250	625	1,875	*751*	2,626	*0*	2,626
90 Min	*0*	1,500	1,500	750	2,250	*751*	3,001	*0*	3,001
105 Min	*0*	1,750	1,750	875	2,625	*751*	3,376	*0*	3,376
120 Min	*0*	2,000	2,000	1,000	3,000	*751*	3,751	*0*	3,751
135 Min	*0*	2,250	2,250	1,125	3,375	*751*	4,126	*0*	4,126
150 Min	*0*	2,500	2,500	1,250	3,750	*751*	4,501	*0*	4,501
165 Min	*0*	2,750	2,750	1,375	4,125	*751*	4,876	*0*	4,876
180 Min	*0*	3,000	3,000	1,500	4,500	*751*	5,251	*0*	5,251
195 Min	*0*	3,250	3,250	1,625	4,875	*751*	5,626	*0*	5,626
210 Min	*0*	3,500	3,500	1,750	5,250	*751*	6,001	*0*	6,001
225 Min	*0*	3,750	3,750	1,875	5,625	*751*	6,376	*0*	6,376
240 Min	*0*	4,000	4,000	2,000	6,000	*751*	6,751	*0*	6,751
255 Min	*0*	4,250	4,250	2,125	6,375	*751*	7,126	*0*	7,126
270 Min	*0*	4,500	4,500	2,250	6,750	*751*	**7,501**	*0*	**7,501**
285 Min	*0*	*4,500*	*4,500*	*2,250*	*6,750*	*751*	*7,501*	*0*	*7,501*

Wind Driven Fire at North Interface (Wind NE direction @ 70 mph) with Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site (out of alignment) for the balance of the modeling timeframe.



NE at 70 mphParital Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
255	4:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
270	4:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open

8. NNEat70Line- Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1.5 hour to evacuate 842 DU (1,970 vehicles) from the priority evacuation area of the Project
4.75 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

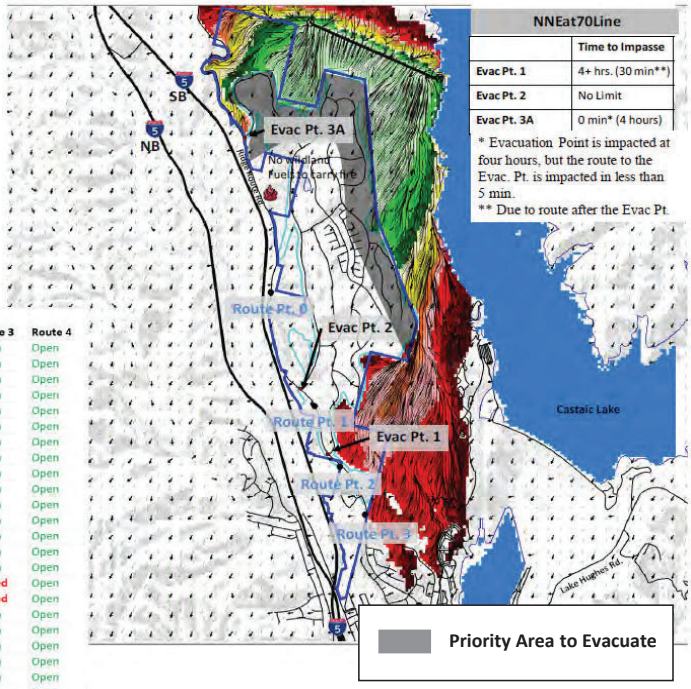
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1		Evac Pt. 1	Ridge Route Pt. 2		Project Affordable Housing	Ridge Route Pt. 3		Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	1,276	1,276		693	1,970		0	1,970		0	1,970
Number of lanes at evacuation point	1	2	--		1	--		2	--		1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--		1,600	--		1,600	--		1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--		500	--		1,000	--		500	--
Vehicles per 15 min	125	250	--		125	--		250	--		125	--
Time limit	Closed until 255 Min from start of fire	No limit	No limit		No limit	Ridge Route closes at 240 Min and reopens at 270 Min		Ridge Route closes at 240 Min and reopens at 270 Min	Ridge Route closes at 240 Min and reopens at 270 Min		--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

		A	B	A+B=C		D	C+D=E		F	E+F=G		H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1		No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2		No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3		No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	0	250	250		125	375		250	625		0	625
30	Min	0	500	500		250	750		500	1,250		0	1,250
45	Min	0	750	750		375	1,125		750	1,875		0	1,875
60	Min	0	1,000	1,000		500	1,500		751	2,251		0	2,251
75	Min	0	1,250	1,250		625	1,875		751	2,626		0	2,626
90	Min	0	1,500	1,500		750	2,250		751	3,001		0	3,001
105	Min	0	1,750	1,750		875	2,625		751	3,376		0	3,376
120	Min	0	2,000	2,000		1,000	3,000		751	3,751		0	3,751
135	Min	0	2,250	2,250		1,125	3,375		751	4,126		0	4,126
150	Min	0	2,500	2,500		1,250	3,750		751	4,501		0	4,501
165	Min	0	2,750	2,750		1,375	4,125		751	4,876		0	4,876
180	Min	0	3,000	3,000		1,500	4,500		751	5,251		0	5,251
195	Min	0	3,250	3,250		1,625	4,875		751	5,626		0	5,626
210	Min	0	3,500	3,500		1,750	5,250		751	6,001		0	6,001
225	Min	0	3,750	3,750		1,875	5,625		751	6,376		0	6,376
240	Min	0	3,750	3,750		1,875	5,625		751	6,376		0	6,376
255	Min	0	3,750	3,750		1,875	5,625		751	6,376		0	6,376
270	Min	125	4,000	4,125		2,000	6,125		751	6,876		0	6,876
285	Min	250	4,250	4,500		2,125	6,625		751	7,376		0	7,376
300	Min	250	4,250	4,500		2,125	6,625		751	7,376		0	7,376

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NNE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately four hours into the simulated event.



NNE at 70 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Closed	n/a	n/a	Open	Open	Closed	Closed	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Open	Closed	Closed	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

8. NNEat70Line - Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 1.25 hours to evacuate 767 DU (1,795 vehicles) from the priority evacuation area of the Project
2.75 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	1,227	1,227	567	1,795	0	1,795	0	1,795
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed until 255 Min at fire started	No limit	No limit	No limit	Ridge Route closes at 240 Min and reopens at 270 Min	Ridge Route closes at 240 Min and reopens at 270 Min	Ridge Route closes at 240 Min and reopens at 270 Min	--	No limit

Vehicle Evacuation Shown in 15 Minute Intervals

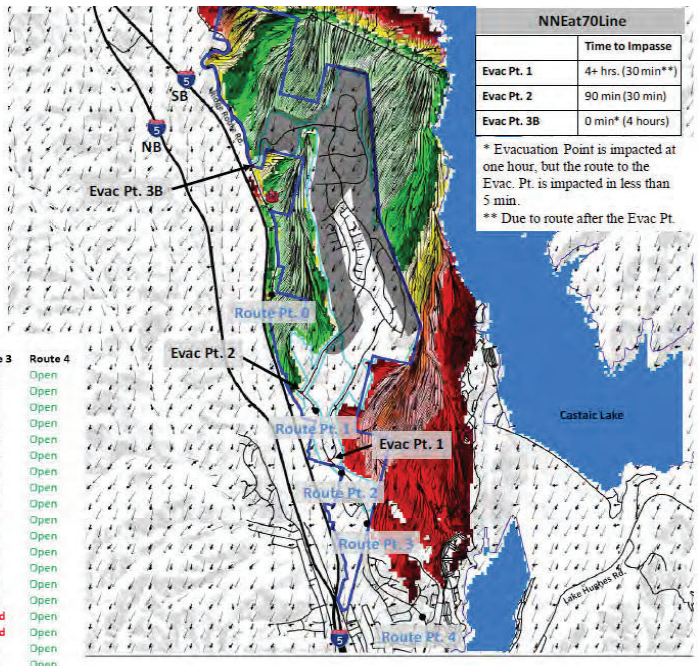
Time	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	*0*	250	250	125	375	250	625	*0*	625
30 Min	*0*	500	500	250	750	386	1,136	*0*	1,136
45 Min	*0*	750	750	375	1,125	*386*	1,511	*0*	1,511
60 Min	*0*	1,000	1,000	500	1,500	*386*	1,886	*0*	1,886
75 Min	*0*	1,250	1,250	625	1,875	*386*	2,261	*0*	2,261
90 Min	*0*	1,500	1,500	750	2,250	*386*	2,636	*0*	2,636
105 Min	*0*	1,750	1,750	875	2,625	*386*	3,011	*0*	3,011
120 Min	*0*	2,000	2,000	1,000	3,000	*386*	3,386	*0*	3,386
135 Min	*0*	2,250	2,250	1,125	3,375	*386*	3,761	*0*	3,761
150 Min	*0*	2,500	2,500	1,250	3,750	*386*	4,136	*0*	4,136
165 Min	*0*	2,750	2,750	1,375	4,125	*386*	4,511	*0*	4,511
180 Min	*0*	*2,750*	*2,750*	*1,375*	*4,125*	*386*	*4,511*	*0*	*4,511*

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NNE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately four hours into the simulated event.

NNE at 70 mph Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
75	1:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Closed	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Closed	Open
255	4:15	Open	Open	n/a	Open	n/a	Open	Open	Closed	Closed	Open
270	4:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Open	n/a	Open	Open	Open	Open	Open



8. NNEat70Line - Partial Creek Avoidance Alt.

Results: 1.75 hours to evacuate 963 DU (2,253 vehicles) from the priority evacuation area of the Project
4.5 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	**0**	**1,485**	**1,485**	**769**	**2,253**	**0**	**2,253**	**0**	**2,253**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed	No limit	No limit	No limit	Ridge Route closes at 240 Min and reopens at 270 Min	Ridge Route closes at 240 Min and reopens at 270 Min	Ridge Route closes at 240 Min and reopens at 270 Min	--	No limit

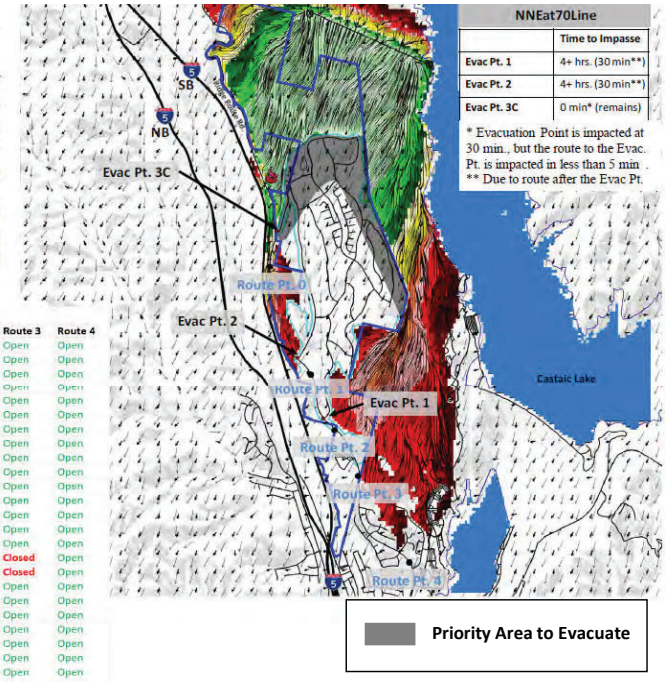
Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	*0*	250	250	125	375	250	625	*0*	625
30 Min	*0*	500	500	250	750	500	1,250	*0*	1,250
45 Min	*0*	750	750	375	1,125	750	1,875	*0*	1,875
60 Min	*0*	1,000	1,000	500	1,500	751	2,251	*0*	2,251
75 Min	*0*	1,250	1,250	625	1,875	*751*	2,626	*0*	2,626
90 Min	*0*	**1,500**	**1,500**	750	2,250	*751*	3,001	*0*	3,001
105 Min	*0*	1,750	1,750	**875**	**2,625**	*751*	3,376	*0*	3,376
120 Min	*0*	2,000	2,000	1,000	3,000	*751*	3,751	*0*	3,751
135 Min	*0*	2,250	2,250	1,125	3,375	*751*	4,126	*0*	4,126
150 Min	*0*	2,500	2,500	1,250	3,750	*751*	4,501	*0*	4,501
165 Min	*0*	2,750	2,750	1,375	4,125	*751*	4,876	*0*	4,876
180 Min	*0*	3,000	3,000	1,500	4,500	*751*	5,251	*0*	5,251
195 Min	*0*	3,250	3,250	1,625	4,875	*751*	5,626	*0*	5,626
210 Min	*0*	3,500	3,500	1,750	5,250	*751*	6,001	*0*	6,001
225 Min	*0*	3,750	3,750	1,875	5,625	*751*	6,376	*0*	6,376
240 Min	*0*	4,000	4,000	2,000	6,000	*751*	6,751	*0*	6,751
255 Min	*0*	4,250	4,250	2,125	6,375	*751*	7,126	*0*	7,126
270 Min	*0*	4,500	4,500	2,250	6,750	*751*	**7,501**	*0*	**7,501**
285 Min	*0*	*4,500*	*4,500*	*2,250*	*6,750*	*751*	*7,501*	*6 1*	*,1 2*

Wind Driven Fire at North Interface (Wind NNE direction @ 70 mph) with Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the NE of the Project Site. Wind is from the NNE at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately four hours into the simulated event.

NNE at 70 mph	Parital Creek Avoidance		Evacuation to the South							
	Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	0:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	0:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	1:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
75	1:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
90	1:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
105	1:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
120	2:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
135	2:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
150	2:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
165	2:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
180	3:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
195	3:15 Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
210	3:30 Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
225	3:45 Open	Open	n/a	n/a	Closed	Closed	Open	Open	Open	Open
240	4:00 Open	Open	n/a	n/a	Closed	Open	Open	Closed	Closed	Open
255	4:15 Open	Open	n/a	n/a	Closed	Open	Open	Closed	Closed	Open
270	4:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
285	4:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
300	5:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
315	5:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
330	5:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
345	5:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
360	6:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
375	6:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
390	6:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
405	6:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
420	7:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open



9. Nat70Line- Previously Approved Plan

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 3.5 hours to evacuate 1,687 DU (3,948 vehicles) from the priority evacuation area of the Project
5.75 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	2,447	2,447	1,500	3,948	0	3,948	0	3,948
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed	Closed at 90 Min, reopens at 120 Min	No limit	No limit	Ridge Route closes at 240 Min, reopens at 270 Min	Ridge Route closes at 120 Min, reopens at 150 Min	Ridge Route closes at 120 Min, reopens at 150 Min	--	Ridge Route closes at 240 Min, reopens at 270 Min

Vehicle Evacuation Shown in 15 Minute Intervals

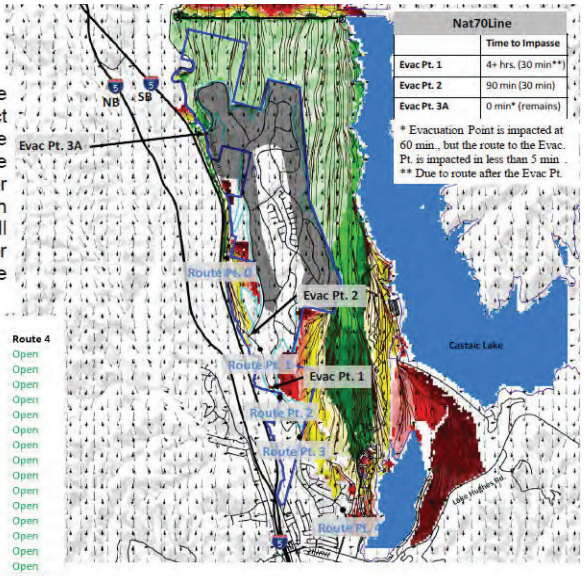
		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	0	250	250	125	375	250	625	0	625
30	Min	0	500	500	250	750	500	1,250	0	1,250
45	Min	0	750	750	375	1,125	750	1,875	0	1,875
60	Min	0	1,000	1,000	500	1,500	751	2,251	0	2,251
75	Min	0	1,250	1,250	625	1,875	751	2,626	0	2,626
90	Min	0	1,250	1,250	750	2,000	751	2,751	0	2,751
105	Min	0	1,250	1,250	875	2,125	751	2,876	0	2,876
120	Min	0	1,250	1,250	875	2,125	751	2,876	0	2,876
135	Min	0	1,250	1,250	875	2,125	751	2,876	0	2,876
150	Min	0	1,500	1,500	1,000	2,500	751	3,251	0	3,251
165	Min	0	1,750	1,750	1,125	2,875	751	3,626	0	3,626
180	Min	0	2,000	2,000	1,250	3,250	751	4,001	0	4,001
195	Min	0	2,250	2,250	1,375	3,625	751	4,376	0	4,376
210	Min	0	2,500	2,500	1,500	4,000	751	4,751	0	4,751
225	Min	0	2,750	2,750	1,625	4,375	751	5,126	0	5,126
240	Min	0	2,750	2,750	1,625	4,375	751	5,126	0	5,126
255	Min	0	2,750	2,750	1,625	4,375	751	5,126	0	5,126
270	Min	0	3,000	3,000	1,750	4,750	751	5,501	0	5,501
285	Min	0	3,250	3,250	1,875	5,125	751	5,876	0	5,876
300	Min	0	3,500	3,500	2,000	5,500	751	6,251	0	6,251
315	Min	0	3,750	3,750	2,125	5,875	751	6,626	0	6,626
330	Min	0	4,000	4,000	2,250	6,250	751	7,001	0	7,001
345	Min	0	4,250	4,250	2,375	6,625	751	7,376	0	7,376
360	Min	0	4,250	4,250	2,375	6,625	751	7,376	0	7,376

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site. Wind is from the North at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours.

N at 70 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Closed	Closed	n/a	n/a	Closed	Open	Open	Open	Open
105	1:45	Open	Closed	Closed	n/a	n/a	Closed	Open	Open	Open	Open
120	2:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Closed	Open
135	2:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Closed	Open
150	2:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Closed	n/a	n/a	Open	Open	Closed	Open	Closed
255	4:15	Open	Open	Closed	n/a	n/a	Open	Open	Closed	Open	Closed
270	4:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open



9. Nat70Line - Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results: 2.5 hrs to evacuate 940 DU (2,198 vehicles) from the priority evacuation area of the Project
3.5 hrs to evacuate entire Project 1,815 DU (4,247 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	1,265	1,265	933	2,198	0	2,198	0	2,198
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed	Closes at 60 Min, reopens at 90 Min	Closes at 60 Min, reopens at 90 Min	No limit	Ridge Route closes at 240 Min, reopens at 270 Min	Ridge Route closes at 120 Min, reopens at 150 Min	Ridge Route closes at 120 Min, reopens at 150 Min	--	Ridge Route closes at 240 Min, reopens at 270 Min

Vehicle Evacuation Shown in 15 Minute Intervals

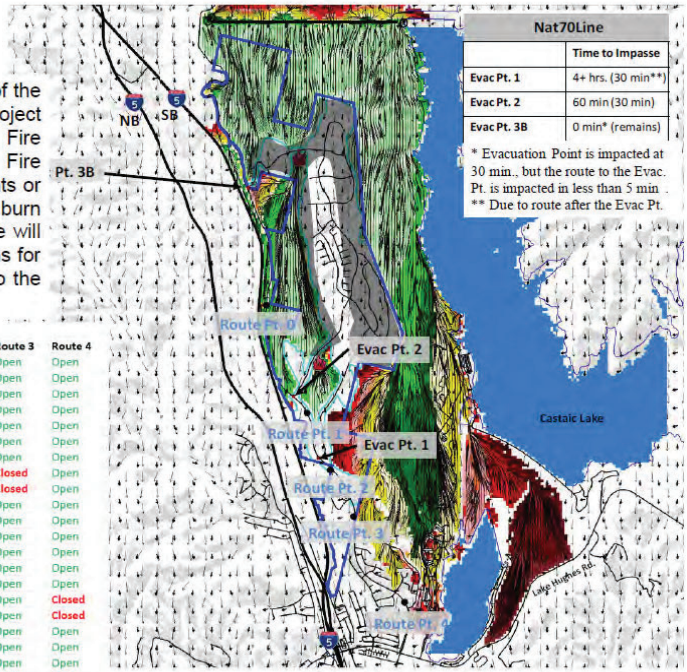
		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	0	250	250	125	375	250	625	0	625
30	Min	0	500	500	250	750	386	1,136	0	1,136
45	Min	0	750	750	375	1,125	386	1,511	0	1,511
60	Min	0	750	750	500	1,250	386	1,636	0	1,636
75	Min	0	750	750	625	1,375	386	1,761	0	1,761
90	Min	0	1,000	1,000	750	1,750	386	2,136	0	2,136
105	Min	0	1,250	1,250	875	2,125	386	2,511	0	2,511
120	Min	0	1,250	1,250	875	2,125	386	2,511	0	2,511
135	Min	0	1,250	1,250	875	2,125	386	2,511	0	2,511
150	Min	0	1,500	1,500	1,000	2,500	386	2,886	0	2,886
165	Min	0	1,750	1,750	1,125	2,875	386	3,261	0	3,261
180	Min	0	2,000	2,000	1,250	3,250	386	3,636	0	3,636
195	Min	0	2,250	2,250	1,375	3,625	386	4,011	0	4,011
210	Min	0	2,500	2,500	1,500	4,000	386	4,386	0	
225	Min	0	2,500	2,500	1,500	4,000	386	4,386	0	4,386

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site. Wind is from the North at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours.

N at 70 mph Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	Closed	n/a	Closed	Closed	Open	Open	Open
75	1:15	Open	Closed	n/a	Closed	n/a	Closed	Closed	Open	Open	Open
90	1:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Closed	Open
135	2:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Closed	Open
150	2:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Open	Closed
255	4:15	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Open	Closed
270	4:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open



9. Nat70Line - Partial Creek Avoidance Alt.

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Results 3 5 hours to evacuate 1,702 (3,983 vehicles) from the priorit evacuation area of the Pro ect
5 25 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	**0**	**2,489**	**2,489**	**1,493**	**3,983**	**0**	**3,983**	**0**	**3,983**
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed	Closes at 60 Min, reopens at 90 Min	No limit	No limit	Ridge Route closes at 240 Min, reopens at 270 Min	Ridge Route closes at 120 Min, reopens at 150 Min	Ridge Route closes at 120 Min, reopens at 150 Min	--	Ridge Route closes at 240 Min, reopens at 270 Min

Vehicle Evacuation Shown in 15 Minute Intervals

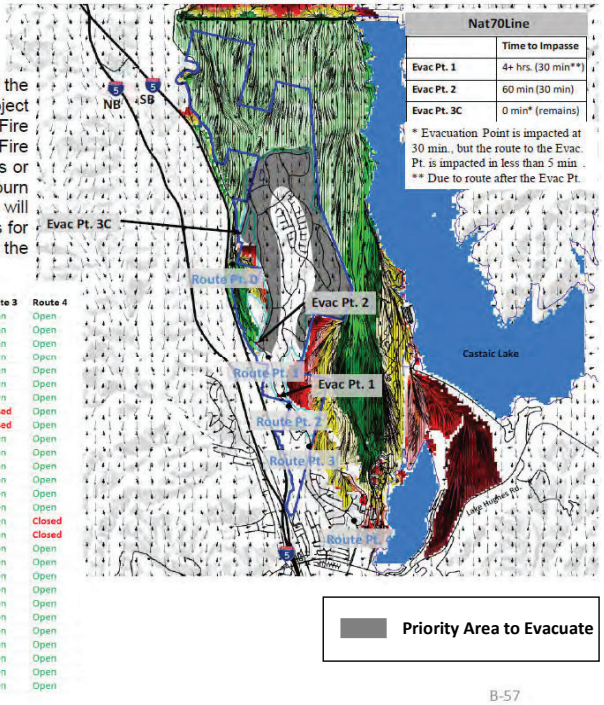
		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	*0*	250	250	125	375	250	625	*0*	625
30	Min	*0*	500	500	250	750	500	1,250	*0*	1,250
45	Min	*0*	750	750	375	1,125	750	1,875	*0*	1,875
60	Min	*0*	*750*	*750*	500	1,250	751	2,001	*0*	2,001
75	Min	*0*	*750*	*750*	625	1,375	*751*	2,126	*0*	2,126
90	Min	*0*	1,000	1,000	750	1,750	*751*	2,501	*0*	2,501
105	Min	*0*	1,250	1,250	875	2,125	*751*	2,876	*0*	2,876
120	Min	*0*	*1,250*	*1,250*	*75*	*2,125*	*751*	*2, 76*	*0*	*2, 76*
135	Min	*0*	*1,250*	*1,250*	*75*	*2,125*	*751*	*2, 76*	*0*	*2, 76*
150	Min	*0*	1,500	1,500	1,000	2,500	*751*	3,251	*0*	3,251
165	Min	*0*	1,750	1,750	1,125	2,875	*751*	3,626	*0*	3,626
180	Min	*0*	2,000	2,000	1,250	3,250	*751*	4,001	*0*	4,001
195	Min	*0*	2,250	2,250	1,375	3,625	*751*	4,376	*0*	4,376
210	Min	*0*	2,500	**2,500**	1,500	**4,000**	*751*	4,751	*0*	4,751
225	Min	*0*	2,750	2,750	1,625	4,375	*751*	5,126	*0*	5,126
240	Min	*0*	3,000	3,000	1,750	4,750	*751*	5,501	*0*	5,501
255	Min	*0*	3,250	3,250	1,875	5,125	*751*	5,876	*0*	5,876
270	Min	*0*	3,500	3,500	2,000	5,500	*751*	6,251	*0*	6,251
285	Min	*0*	3,750	3,750	2,125	5,875	*751*	6,626	*0*	6,626
300	Min	*0*	4,000	4,000	2,250	6,250	*751*	7,001	*0*	7,001
315	Min	*0*	4,250	4,250	2,375	6,625	*751*	**7,376**	*0*	**7,376**
330	Min	*0*	*4,250*	*4,250*	*2,375*	*6,625*	*751*	*7,376*	*0*	*7,376*

Wind Driven Fire at North Interface (Wind N direction @ 70 mph) with Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site. Wind is from the North at 70 mph. Fire impact the Project Site in less than 5 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours.

N at 70 mphParital Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15	Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Closed	Open
135	2:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Closed	Open
150	2:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	n/a	Closed	Open	Open	Closed	Open	Closed
255	4:15	Open	Open	n/a	n/a	Closed	Open	Open	Closed	Open	Closed
270	4:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
315	5:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
330	5:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open



10. Templin Trigger- Approved Plan

Results: 4 hours to evacuate entire Project 3,150 DU (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

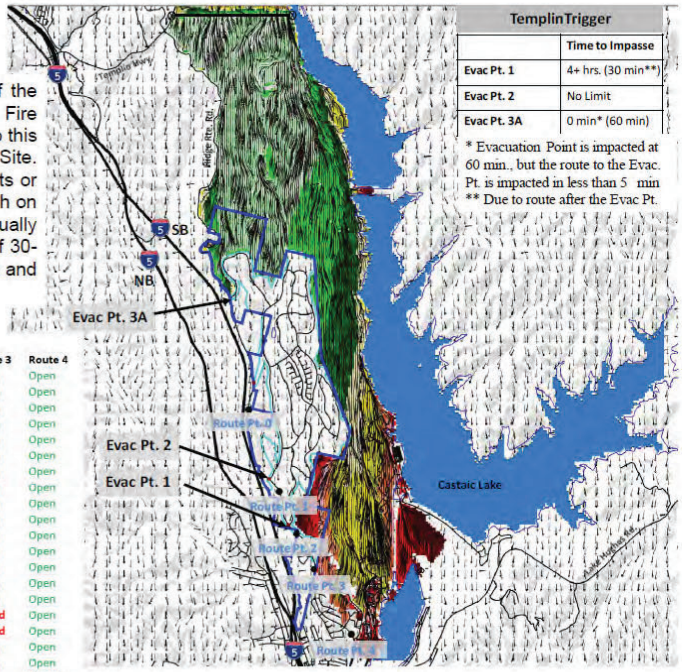
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	1,258	3,575	4,832	1,787	6,620	751	7,371	0	7,371
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed for first 60 Min.	No limit	No limit	No limit	Ridge Route closes at 300 Min, reopens at 330 Min	Ridge Route closes at 225 Min, reopens at 255 Min	Ridge Route closes at 240 Min, reopens at 270 Min	--	Ridge Route closes at 300 Min, reopens at 330 Min

Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	*0*	250	250	125	375	250	625	*0*	625
30 Min	*0*	500	500	250	750	500	1,250	*0*	1,250
45 Min	*0*	750	750	375	1,125	750	1,875	*0*	1,875
60 Min	*0*	1,000	1,000	500	1,500	751	2,251	*0*	2,251
75 Min	125	1,250	1,375	625	2,000	*751*	2,751	*0*	2,751
90 Min	250	1,500	*1,750*	750	2,500	*751*	3,251	*0*	3,251
105 Min	375	1,750	*2,125*	875	3,000	*751*	3,751	*0*	3,751
120 Min	500	2,000	*2,500*	1,000	3,500	*751*	4,251	*0*	4,251
135 Min	625	2,250	*2,875*	1,125	4,000	*751*	4,751	*0*	4,751
150 Min	750	2,500	*3,250*	1,250	4,500	*751*	5,251	*0*	5,251
165 Min	875	2,750	3,625	1,375	5,000	*751*	5,751	*0*	5,751
180 Min	1,000	3,000	4,000	1,500	5,500	*751*	6,251	*0*	6,251
195 Min	1,125	3,250	4,375	1,625	6,000	*751*	6,751	*0*	6,751
210 Min	1,250	3,500	4,750	1,750	6,500	*751*	7,251	*0*	7,251
225 Min	1,375	3,750	5,125	1,875	7,000	*751*	7,751	*0*	7,751
240 Min	*1,375*	*3,750*	*5,125*	*1,875*	*7,000*	*751*	*7,751*	*0*	*7,751*

Templin Highway and Ridge Route Road Trigger Point
Previously Approved Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site at Templin Highway. Wind is from the North at 70 mph. Fire impact the Project Site in less than 10 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 3A. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours and again at five hours.



Templin at 70 mph Approved — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Open	Closed	n/a	n/a	Open	Open	Open	Open	Open
75	1:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
90	1:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Closed	Open
255	4:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Closed	Open
270	4:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	Open	n/a	n/a	Open	Open	Closed	Open	Closed
315	5:15	Open	Open	Open	n/a	n/a	Open	Open	Closed	Open	Closed
330	5:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	Open	n/a	n/a	Open	Open	Open	Open	Open

Entire Project Area under Priority Evacuation

10. Templin Trigger - Creek Avoidance Alt.

Results: 3.25 hours to evacuate entire Project 1,815 DU (4,247 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	2,317	2,317	1,544	3,861	386	4,247	0	4,247
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed	Closes at 60 Min, reopens at 105 Min	Closes at 60 Min, reopens at 90 Min	No limit	Closes at 300 Min, reopens at 330 Min	Closes at 240 Min, reopens at 270 Min	Closes at 240 Min, reopens at 270 Min	--	Closes at 300 Min, reopens at 330 Min

Vehicle Evacuation Shown in 15 Minute Intervals

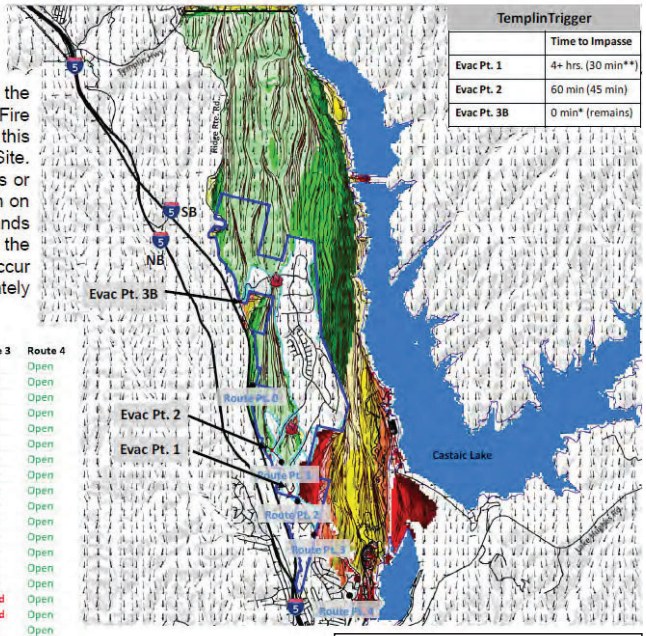
		A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time		No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15	Min	0	250	250	125	375	250	625	0	625
30	Min	0	500	500	250	750	386	1,136	0	1,136
45	Min	0	750	750	375	1,125	386	1,511	0	1,511
60	Min	0	750	750	500	1,250	386	1,636	0	1,636
75	Min	0	750	750	625	1,375	386	1,761	0	1,761
90	Min	0	750	750	750	1,500	386	1,886	0	1,886
105	Min	0	1,000	1,000	875	1,875	386	2,261	0	2,261
120	Min	0	1,250	1,250	1,000	2,250	386	2,636	0	2,636
135	Min	0	1,500	1,500	1,125	2,625	386	3,011	0	3,011
150	Min	0	1,750	1,750	1,250	3,000	386	3,386	0	3,386
165	Min	0	2,000	2,000	1,375	3,375	386	3,761	0	3,761
180	Min	0	2,250	2,250	1,500	3,750	386	4,136	0	4,136
195	Min	0	2,500	2,500	1,625	4,125	386	4,511	0	4,511
210	Min	0	2,500	2,500	1,625	4,125	386	4,511	0	4,511

Templin Highway and Ridge Route Road Trigger Point
Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site at Templin Highway. Wind is from the North at 70 mph. Fire impact the Project Site in less than 10 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 1 due to the fuel islands between the access roads. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours and again at five hours.

Templin at 70 mph Creek Avoidance — Evacuation to the South

		Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
30	0:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
45	0:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
60	1:00	Open	Closed	n/a	Closed	n/a	Closed	Closed	Open	Open	Open
75	1:15	Open	Closed	n/a	Closed	n/a	Closed	Closed	Open	Open	Open
90	1:30	Open	Closed	n/a	Closed	n/a	Open	Open	Open	Open	Open
105	1:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
120	2:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
135	2:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
150	2:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
165	2:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
180	3:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
195	3:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
210	3:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
225	3:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
240	4:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Closed	Open
255	4:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Closed	Open
270	4:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
285	4:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
300	5:00	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Open	Closed
315	5:15	Open	Open	n/a	Closed	n/a	Open	Open	Closed	Open	Closed
330	5:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
345	5:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
360	6:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
375	6:15	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
390	6:30	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
405	6:45	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open
420	7:00	Open	Open	n/a	Closed	n/a	Open	Open	Open	Open	Open



Entire Project Area under Priority Evacuation

10. Templin Trigger - Partial Creek Avoidance Alt.

Results 5 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)

Vehicles from Priority Evacation Area of the Project
Remaining Vehicles from Project Area

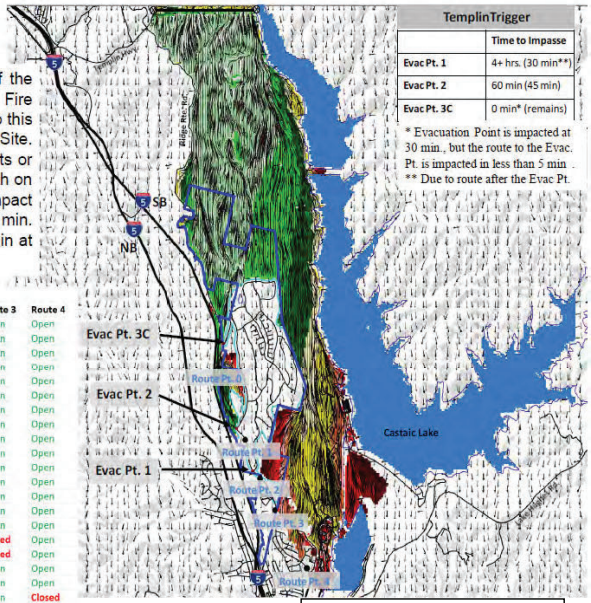
Description	Evac Pt. 3	Evac Pt. 2	Ridge Route Pt. 1	Evac Pt. 1	Ridge Route Pt. 2	Project Affordable Housing	Ridge Route Pt. 3	Northlake Hills	Ridge Route Pt. 4
Number of vehicles to evacuate	0	4,171	4,171	2,449	6,620	751	7,371	0	7,371
Number of lanes at evacuation point	1	2	--	1	--	2	--	1	--
Vehicles per hour (vph) - no congestion	1,600	3,200	--	1,600	--	1,600	--	1,600	--
Vehicles per hour (vph) - with congestion	500	1,000	--	500	--	1,000	--	500	--
Vehicles per 15 min	125	250	--	125	--	250	--	125	--
Time limit	Closed	Closes at 60 Min, reopens at 105 Min	No limit	No limit	Closes at 300 Min, reopens at 330 Min	Closes at 240 Min, reopens at 270 Min	Closes at 240 Min, reopens at 270 Min	--	Closes at 300 Min, reopens at 330 Min

Vehicle Evacuation Shown in 15 Minute Intervals

	A	B	A+B=C	D	C+D=E	F	E+F=G	H	G+H=I
Time	No. of Vehicles Passing Through Evac Pt. 3	No. of Vehicles Passing Through Evac Pt. 2	Total No. of Vehicles from Evac Pt. 3 and Evac Pt. 2 Passing Through Ridge Rt Pt. 1	No. of Vehicles Passing Through Evac Pt. 1	Total No. of Vehicles from Evac Pts. 3, 2 & 1 Passing Through Ridge Rt. Pt. 2	No. of Vehicles from Project AH Passing through Ridge Rt south of B St	Total No. of Vehicles from Evac Pts. 3, 2, 1, & AH Passing Through Ridge Rt Pt. 3	No. of Vehicles from NH Passing Through Ridge Rt	Total No. of Vehicles from Evac Pts. 3, 2, 1, AH, NH Passing Through Ridge Rt Pt. 4
15 Min	0	250	250	125	375	250	625	0	625
30 Min	0	500	500	250	750	500	1,250	0	1,250
45 Min	0	750	750	375	1,125	750	1,875	0	1,875
60 Min	0	750	750	500	1,250	751	2,001	0	2,001
75 Min	0	750	750	625	1,375	751	2,126	0	2,126
90 Min	0	750	750	750	1,500	751	2,251	0	2,251
105 Min	0	1,000	1,000	875	1,875	751	2,626	0	2,626
120 Min	0	1,250	1,250	1,000	2,250	751	3,001	0	3,001
135 Min	0	1,500	1,500	1,125	2,625	751	3,376	0	3,376
150 Min	0	1,750	1,750	1,250	3,000	751	3,751	0	3,751
165 Min	0	2,000	2,000	1,375	3,375	751	4,126	0	4,126
180 Min	0	2,250	2,250	1,500	3,750	751	4,501	0	4,501
195 Min	0	2,500	2,500	1,625	4,125	751	4,876	0	4,876
210 Min	0	2,750	2,750	1,750	4,500	751	5,251	0	5,251
225 Min	0	3,000	3,000	1,875	4,875	751	5,626	0	5,626
240 Min	0	3,000	3,000	1, 75	4, 75	751	5,626	0	5,626
255 Min	0	3,000	3,000	1, 75	4, 75	751	5,626	0	5,626
270 Min	0	3,250	3,250	2,000	5,250	751	6,001	0	6,001
285 Min	0	3,500	3,500	2,125	5,625	751	6,376	0	6,376
300 Min	0	3,750	3,750	2,250	6,000	751	6,751	0	6,751
315 Min	0	4,000	4,000	2,375	6,375	751	7,126	0	7,126
330 Min	0	4,250	4,250	2,500	6,750	751	7,501	0	7,501
345 Min	0	4,250	4,250	2,500	6,750	751	7,501	0	7,501

Templin Highway and Ridge Route Road Trigger Point
Partial Creek Avoidance Development

Narrative: Fire is modeled from an existing line of fire to the North of the Project Site at Templin Highway. Wind is from the North at 70 mph. Fire impact the Project Site in less than 10 minutes if the fire has progressed to this point. Fire continues to burn south along the eastern edge of the Project Site. Fire may spot across the freeway but will not impact the evacuation points or route points if it did so if was not modeled. Fire will continue to burn south on the west side of the Project Site down to Evac Pt. 2. Fire will eventually impact Ridge Route to the south and close all evacuations for a period of 30-60 min. This will occur approximately two hours into the simulated event and again at approximately four hours and again at five hours.



Entire Project Area under Priority Evacuation

Templin at 70 mphParital Creek Avoidance Evacuation to the South

	Evac Pt 1	Evac Pt 2	Evac Pt. 3A	Evac Pt. 3B	Evac Pt. 3C	Route 0	Route 1	Route 2	Route 3	Route 4
15	0:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
30	0:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
45	0:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
60	1:00 Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
75	1:15 Open	Closed	n/a	n/a	Closed	Closed	Open	Open	Open	Open
90	1:30 Open	Closed	n/a	n/a	Closed	Open	Open	Open	Open	Open
105	1:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
120	2:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
135	2:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
150	2:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
165	2:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
180	3:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
195	3:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
210	3:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
225	3:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
240	4:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Closed	Open
255	4:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Closed	Open
270	4:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
285	4:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
300	5:00 Open	Open	n/a	n/a	Closed	Open	Open	Closed	Open	Closed
315	5:15 Open	Open	n/a	n/a	Closed	Open	Open	Closed	Open	Closed
330	5:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
345	5:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
360	6:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
375	6:15 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
390	6:30 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
405	6:45 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open
420	7:00 Open	Open	n/a	n/a	Closed	Open	Open	Open	Open	Open

Northlake Specific Plan

Evacuation Route Assumptions and Estimated Evacuation Time

Scenario	Previously Approved Plan		Creek Avoidance Alternative		Partial Creek Avoidance Alternative	
	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets
1 Route ire im	vac Pt 1 No impact vac Pt 2 Closes at 60 minutes, reopens at 90 minutes vac Pt 3 No impact Ithough there is no impact at vac Pt 3 , vehicles passing through vac Pt 3 drive southbound on Ridge Route where a segment of the roadwa (Ridge Route Pt 0) closes at 60 minutes Therefore, this anal sis assumes vehicles do not use vac Pt 3 at 60 minutes vac Pt 2 is impassable at 60 minutes and reopen at 90 minutes (from the start of the fire) uring vac Pt 2 closure, all traffic uses vac Pt 1 This anal sis assumes no evacuation route is available to the north	2 hours to evacuate 1,108 (2,593 vehicles) from the priorit evacuation area of the Pro ect 4 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 Closes at 90 minutes, reopens at 150 minutes vac Pt 2 Closes at 60 minutes, reopens at 90 minutes vac Pt 3 Closes at 60 minutes vac Pt 3 and Ridge Route Pt 0 are both impassable at 60 minutes and do not reopen vac Pt 2 is impassable at 60 minutes and reopens at 90 minutes (from the start of the fire) vac Pt 1 closes at 60 minutes and reopens at 150 minutes (from the start of the fire) This anal sis assumes no evacuation route is available to the north	1 hour to evacuate 651 (1,524 vehicles) from the priorit evacuation area of the Pro ect 3 hours to evacuate 1,815 entire Pro ect (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 Closes at 60 minutes, reopens at 90 minutes vac Pt 3C Closes at 60 minutes vac Pt 3C and Ridge Route Pt 0 are both impassable at 60 minutes and do not reopen vac Pt 2 is impassable at 60 minutes and reopens at 90 minutes (from the start of the fire) uring vac Pt 2 closure, all traffic use vac Pt 1 This anal sis assumes no evacuation route is available to the north	1 75 hours to evacuate 927 (2,169 vehicles) from the priorit evacuation area of the Pro ect 4 5 hours to evacuate 3,150 entire Pro ect (7,371 vehicles)
2 at40 pot	vac Pt 1 No impact vac Pt 2 Closes at 60 minutes, reopens at 90 minutes vac Pt 3 Closes at 60 minutes vac Pt 3 and Ridge Route Pt 0 are both impassable at 60 minutes and do not reopen vac Pt 2 is impassable at 60 minutes and reopens at 90 minutes (from the start of the fire) uring vac Pt 2 closure, all traffic would use vac Pt 1 This anal sis assumes no evacuation route is available to the north	2 25 hours to evacuate 1,286 (3,009 vehicles) from the priorit evacuation area of the Pro ect 4 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closed at 60 minutes vac Pt 3 and Ridge Route Pt 0 are both impassable at 60 minutes do not reopen This anal sis assumes no evacuation route is available to the north	45 minutes to evacuate 483 (1,129 vehicles) from the priorit evacuation area of the Pro ect 2 5 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3C Closes at 60 minutes vac Pt 3C and Ridge Route Pt 0 are both impassable at 60 minutes do not reopen This anal sis assumes no evacuation route is available to the north	2 hours to evacuate 1,370 (3,206 vehicles) from the priorit evacuation area of the Pro ect 4 25 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)
3 at40 ine	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closes at 60 minutes vac Pt 3 and Ridge Route Pt 0 are both impassable at 60 minutes and do not reopen This anal sis assumes no evacuation route is available to the north	2 hours to evacuate 1,383 (3,236 vehicles) from the priorit evacuation area of the Pro ect 4 25 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closes at 60 minutes vac Pt 3 and Ridge Route Pt 0 are both impassable at 60 minutes and do not reopen This anal sis assumes no evacuation route is available to the north	1 5 hour to evacuate 1134 (2,653 vehicles) from the priorit evacuation area of the Pro ect 2 5 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3C Closes at 60 minutes vac Pt 3C and Ridge Route Pt 0 are north impassable at 60 minutes and do not reopen This anal sis assumes no evacuation route is available to the north	2 25 hours to evacuate 1,485 (3,475 vehicles) from the priorit evacuation area of the Pro ect 4 25 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)
4 at40 ine	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 No impact ll evacuation points would remain open	3 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 No impact ll evacuation points would remain open	2 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3C No impact ll evacuation points would remain open	3 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)

Northlake Specific Plan

Evacuation Route Assumptions and Estimated Evacuation Time

Scenario	Previously Approved Plan		Creek Avoidance Alternative		Partial Creek Avoidance Alternative	
	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets
5 reewa potsat40	vac Pt 1 Closes at 30 minutes, reopens at 120 minutes vac Pt 2 Closes at 30 minutes, reopens at 120 minutes vac Pt 3 Closes at 30 minutes, reopens at 120 minutes egments of Ridge Route, Route Pt 3 and Route Pt 2 (southerl end of the Pro ect) are impassable at 30 minutes, therefore evacuation would close during this period ll evacuation points reopen at 120 minutes This anal sis assumes no evacuation route is available to the north	2 5 hours to evacuate 822 (1,924 vehicles) from the priorit evacuation area of the Pro ect 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 Closes at 30 minutes, reopens at 120 minutes vac Pt 2 Closes at 30 minutes, reopens at 150 minutes vac Pt 3 Closes at 30 minutes ll evacuation points and Ridge Route points closes at 30 minutes vac Pt 1 reopens at 120 minutes, vac Pt 2 reopens at 150 minutes, and vac Pt 3 remains closed Ridge Route points reopen at 120 minutes This anal sis assumes no evacuation route is available to the north	3 25 hours to evacuate 910 (2,129 vehicles) from the priorit evacuation area of the Pro ect 4 5 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 Closes at 30 minutes, reopens at 120 minutes vac Pt 2 Closes at 30 minutes, reopens at 120 minutes vac Pt 3C Closes at 30 minutes, reopens at 120 minutes egments of Ridge Route, Route Pt 3 and Route Pt 2 (southerl end of the Pro ect) are impassable at 30 minutes, therefore evacuation would close during this period ll evacuation points reopen at 120 minutes This anal sis assumes no evacuation route is available to the north	2 75 hours to evacuate 1,132 (2,649 vehicles) from the priorit evacuation area of the Pro ect 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)
6 a e potat40	vac Pt 1 Closes at 60 minutes, reopens at 90 minutes vac Pt 2 No impact vac Pt 3 No impact vac Pt 1 closes at 60 minutes and reopens at 90 minutes (from the start of the fire) Ridge Route remains open during this closure Ridge Route Pts 1, 2 and 3 are all impassable at 240 minutes and reopens at 300 minutes (from the start of the fire) This anal sis assumes no evacuation route is available to the north	1 25 hours to evacuate 898 (2,101 vehicles) from the priorit evacuation area of the Pro ect 3 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 Closes at 60 minutes, reopens at 90 minutes vac Pt 2 Closes at 90 minutes, reopens at 120 minutes vac Pt 3 Closes at 120 minutes vac Pt 1 closes at 60 minutes and reopens at 90 minutes (from the start of the fire) vac Point 2 closes at 90 minutes and reopens at 120 minutes vac Pt 3 closes at 120 minutes and does not reopen Ridge Route Pts 1, 2 and 3 are all impassable at 240 minutes and reopens at 300 minutes (from the start of the fire) This anal sis assumes no evacuation route is available to the north	2 5 hours to evacuate 1,650 (3,861 vehicles) from the priorit evacuation area of the Pro ect 2 5 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 Closes at 60 minutes, reopens at 90 minutes vac Pt 2 No impact vac Pt 3C No impact vac Pt 1 closes at 60 minutes and reopens at 90 minutes (from the start of the fire) Ridge Route remains open during this closure Ridge Route Pts 1, 2 and 3 are all impassable at 240 minutes and reopens at 300 minutes (from the start of the fire) This anal sis assumes no evacuation route is available to the north	1 5 hour to evacuate 1,056 (2,471 vehicles) from the priorit evacuation area of the Pro ect 3 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)
7 N at70 ine	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closed until 300 minutes after start of fire vac Pt 3 remains closed until 300 minutes from the start of fire Vehicles to use vac Pt 2 and vac Pt 1 This anal sis assumes no evacuation route is available to the north	1 hour to evacuate 570 (1,334 vehicles) from the priorit evacuation area of the Pro ect 4 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closed until 105 minutes after start of fire vac Pt 3 would remain closed until 105 minutes from the start of the fire Vehicles to use vac Pt 2 and vac Pt 1 This anal sis assumes no evacuation route is available to the north	1 5 hours to evacuate 826 (1,932 vehicles) from the priorit evacuation area of the Pro ect 2 5 hours to evacuate 1,815 entire Pro ect (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3C Remains closed vac Pt 3C would remain closed Ridge Route Pt 0 is impassable at 60 minutes and remains closed Vehicles to use vac Pt 2 and vac Pt 1 This anal sis assumes no evacuation route is available to the north	4 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)
8 NN at70 ine	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closed until 255 minutes from start of fire vac Pt 3 would remain closed until 255 minutes from the start of the fire Vehicles would use vac Pt 2 and vac Pt 1 Ridge Route Pt 2 and Ridge Route Pt 3 are north impassable at 240 minutes and reopens at 270 minutes (from the start of the fire) uring this period all evacuations would close This anal sis assumes no evacuation route is available to the north	1 5 hour to evacuate 842 (1,970 vehicles) from the priorit evacuation area of the Pro ect 4 75 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closed until 255 minutes at fire started vac Pt 3 would remain closed until 255 minutes from the start of the fire Vehicles to use vac Pt 2 and vac Pt 1 Ridge Route Pt 2 and Ridge Route Pt 3 are both impassable at 240 minutes and reopens at 270 minutes (from the start of the fire) uring this period all evacuations would close This anal sis assumes no evacuation route is available to the north	1 25 hours to evacuate 767 (1,795 vehicles) from the priorit evacuation area of the Pro ect 2 75 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3C Closed vac Pt 3C would remain closed Vehicles to use vac Pt 2 and vac Pt 1 Ridge Route Pt 2 and Ridge Route Pt 3 are both impassable at 240 minutes and reopens at 270 minutes (from the start of the fire) uring this period all evacuations would close This anal sis assumes no evacuation route is available to the north	1 75 hours to evacuate 963 (2,253 vehicles) from the priorit evacuation area of the Pro ect 4 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)

Northlake Specific Plan

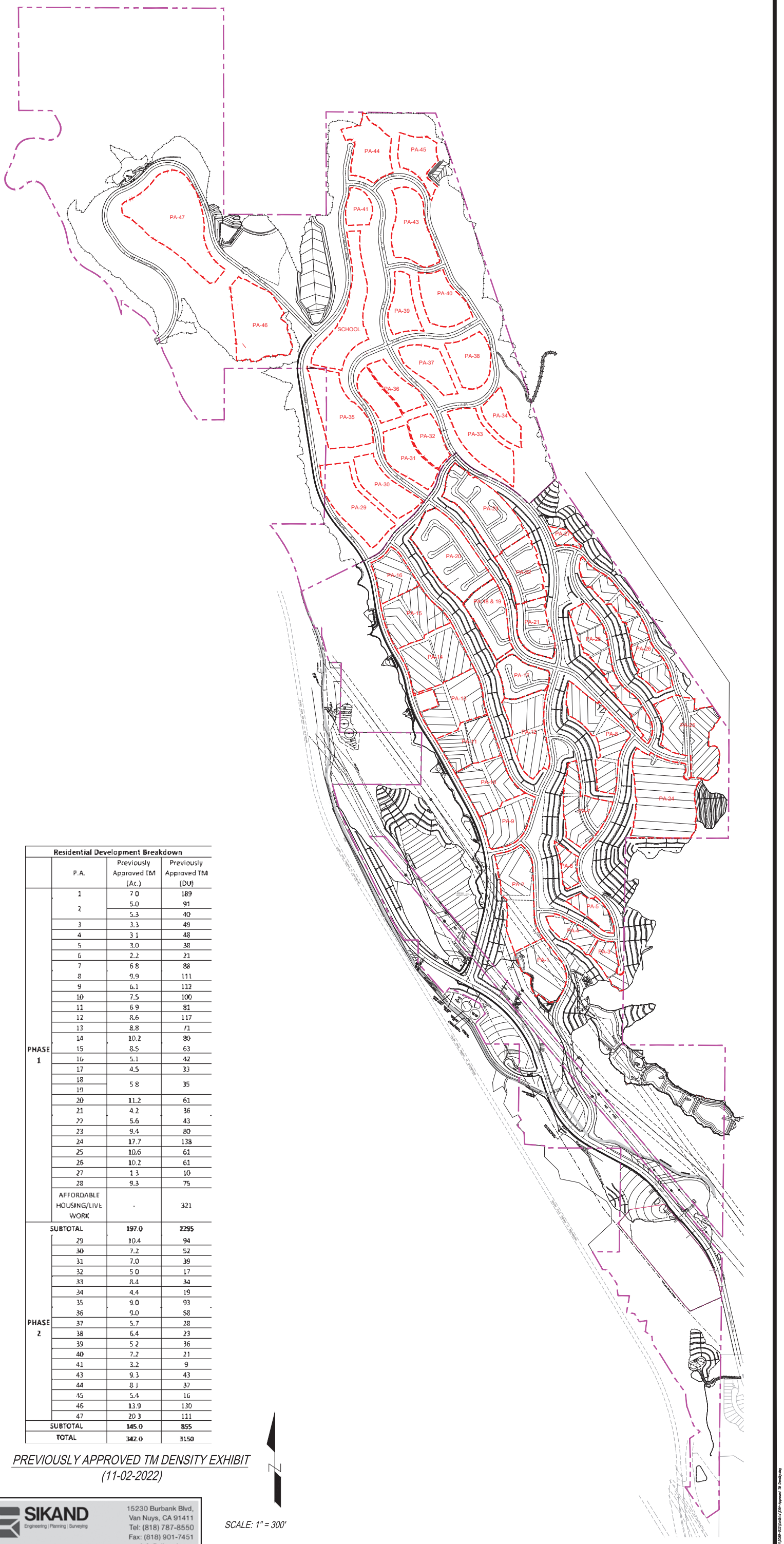
Evacuation Route Assumptions and Estimated Evacuation Time

Scenario	Previously Approved Plan		Creek Avoidance Alternative		Partial Creek Avoidance Alternative	
	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets	Assumptions	Total Time to Evacuate Based on Evacuation Worksheets
9 Nat70 ine	vac Pt 1 No impact vac Pt 2 Closes at 90 minutes and reopens at 120 minutes vac Pt 3 Closed vac Pt 3 would remain closed vac Pt 2 is impassable at 90 minutes and reopens at 120 minutes (from the start of the fire) egments of Ridge Route are impassable at 120 minutes and reopens at 150 (Ridge Route Pt 3), Ridge Route Pt 2 and Ridge Route Pt 4 are both impassable at 240 minutes and reopen at 270 minutes (from the start of the fire) hen Ridge Route Pt 2, 3 and 4 are impassable, evacuations close during that period of time This anal sis assumes no evacuation route is available to the north	3 5 hours to evacuate 1,687 (3,948 vehicles) from the priorit evacuation area of the Pro ect 5 75 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 Closes at 60 minutes, reopens at 90 minutes vac Pt 3 Closed vac Pt 3 would remain closed vac Pt 2 is impassable at 60 minutes and reopens at 90 minutes (from the start of the fire) egments of Ridge Route are impassable at 120 minutes and reopens at 150 (Ridge Route Pt 3), Ridge Route Pt 2 and Ridge Route Pt 4 are both impassable at 240 minutes and reopen at 270 minutes (from the start of the fire) hen Ridge Route Pt 2, 3 and 4 are impassable, evacuations close during that period of time This anal sis assumes no evacuation route is available to the north	2 5 hours to evacuate 940 (2,198 vehicles) from the priorit evacuation area of the Pro ect 3 5 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 Closed at 90 minutes, reopens at 120 minutes vac Pt 3 Closed vac Pt 3C would remain closed vac Pt 2 is impassable at 90 minutes and reopens at 120 minutes (from the start of the fire) egments of Ridge Route are impassable at 120 minutes and reopens at 150 (Ridge Route Pt 3), Ridge Route Pt 2 and Ridge Route Pt 4 are both impassable at 240 minutes and reopen at 270 minutes (from the start of the fire) hen Ridge Route Pt 2, 3 and 4 are impassable, evacuations close during that period This anal sis assumes no evacuation route is available to the north of time	3 5 hours to evacuate 1,702 (3,983 vehicles) from the priorit evacuation area of the Pro ect 5 25 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)
10 Templin Trigger	vac Pt 1 No impact vac Pt 2 No impact vac Pt 3 Closed for first 60 minutes vac Pt 3 would be closed for the first 60 minutes egments of Ridge Route are impassable at 240 minutes and reopens at 270 (Ridge Route Pt 3), Ridge Route Pt 2 and Ridge Route Pt 4 are both impassable at 300 minutes and reopen at 330 minutes (from the start of the fire) hen Ridge Route Pt 2, 3 and 4 are impassable, evacuations close during that period of time This anal sis assumes no evacuation route is available to the north	3 75 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)	vac Pt 1 No impact vac Pt 2 Closes at 60 minutes, reopens at 105 minutes vac Pt 3 Closed vac Pt 3 would remain closed vac Pt 2 is impassable at 60 minutes and reopens at 105 minutes (from the start of the fire) egments of Ridge Route are impassable at 240 minutes and reopens at 270 (Ridge Route Pt 3), Ridge Route Pt 2 and Ridge Route Pt 4 are both impassable at 300 minutes and reopen at 330 minutes (from the start of the fire) hen Ridge Route Pt 2, 3 and 4 are impassable, evacuations close during that period of time This anal sis assumes no evacuation route is available to the north	3 25 hours to evacuate entire Pro ect 1,815 (4,247 vehicles)	vac Pt 1 No impact vac Pt 2 Closes at 60 minutes, reopens at 105 minutes vac Pt 3C Closed vac Pt 3C would remain closed vac Pt 2 is impassable at 60 minutes and reopens at 105 minutes (from the start of the fire) egments of Ridge Route are impassable at 240 minutes and reopens at 270 (Ridge Route Pt 3), Ridge Route Pt 2 and Ridge Route Pt 4 are both impassable at 300 minutes and reopen at 330 minutes (from the start of the fire) hen Ridge Route Pt 2, 3 and 4 are impassable, evacuations close during that period of time This anal sis assumes no evacuation route is available to the north	5 5 hours to evacuate entire Pro ect 3,150 (7,371 vehicles)

ource for the amount of time that the evacuation point would remain viable during each scenario ildland ire Ris Report 2023

Notes The amount of dwelling units under evacuation per scenario is based on ppendi - ire ehavior nal sis utcomes for vacuation Modeling from the ildland ire Ris Report Northla e Pro ect, March 2023

DU = dwelling units; Evac. Pt = Evacuation Point



Residential Development Breakdown			
	P.A.	Previously Approved TM (Ac.)	Previously Approved TM (DU)
PHASE 1	1	7.0	189
	2	5.0	91
		5.3	40
	3	3.3	49
	4	3.1	48
	5	3.0	38
	6	2.2	21
	7	6.8	88
	8	9.9	111
	9	6.1	112
	10	7.5	100
	11	6.9	81
	12	8.6	117
	13	8.8	71
	14	10.2	80
	15	8.5	63
	16	5.1	42
	17	4.5	33
	18	5.8	35
	19		
	20	11.2	61
	21	4.2	36
	22	5.6	43
	23	9.4	80
	24	17.7	138
	25	10.6	61
	26	10.2	61
	27	1.3	10
	28	9.3	75
	AFFORDABLE HOUSING/LIVE WORK	-	321
SUBTOTAL		197.0	2295
PHASE 2	29	10.4	94
	30	7.2	52
	31	7.0	39
	32	5.0	17
	33	8.4	34
	34	4.4	19
	35	9.0	93
	36	9.0	58
	37	5.7	28
	38	6.4	23
	39	5.2	36
	40	7.2	21
	41	3.2	9
	43	9.3	43
	44	8.1	32
	45	5.4	16
	46	13.9	130
	47	20.3	111
SUBTOTAL		145.0	855
TOTAL		342.0	3150

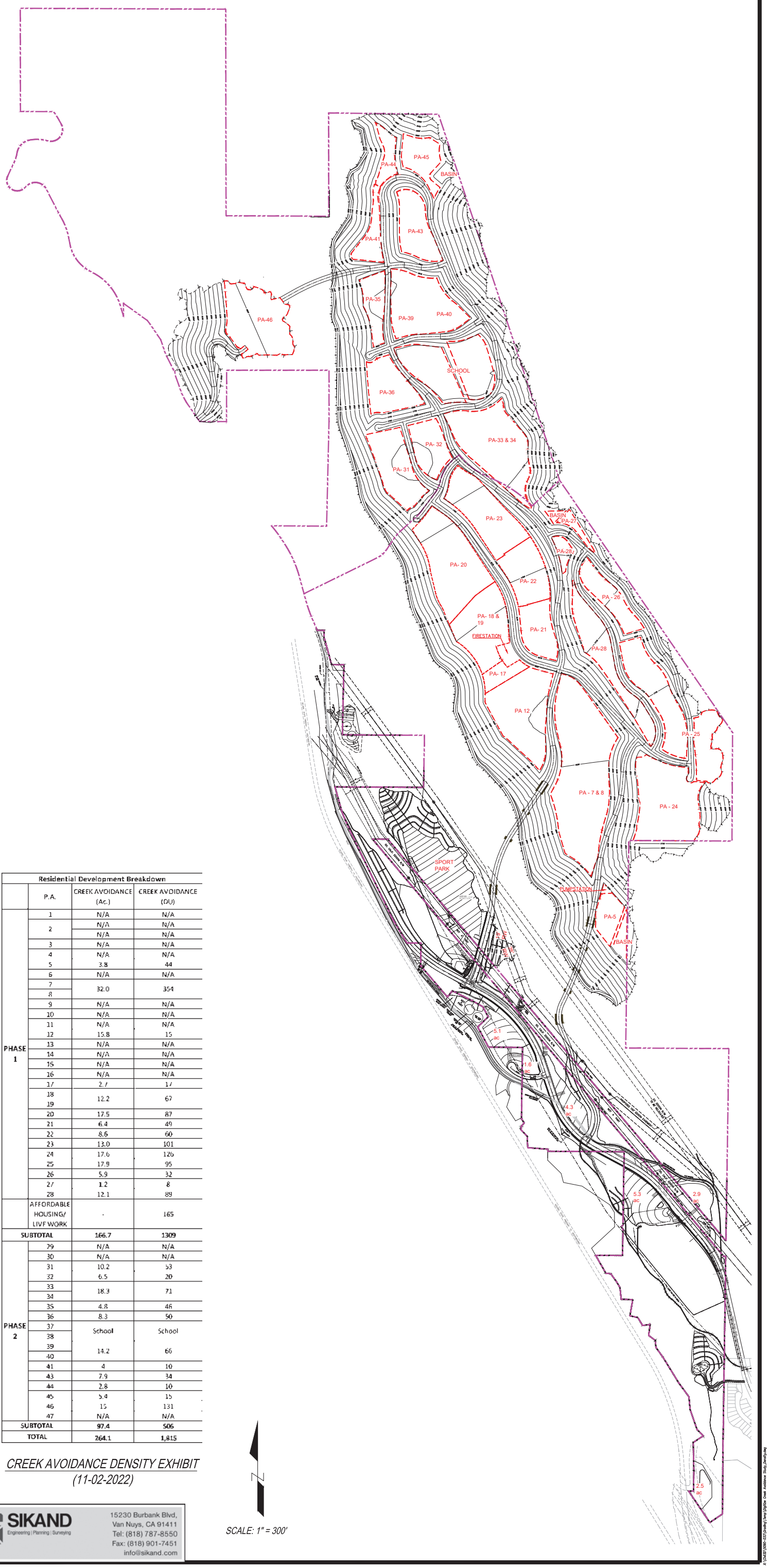
PREVIOUSLY APPROVED TM DENSITY EXHIBIT
(11-02-2022)

N

SCALE: 1" = 300'

SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd,
Van Nuys, CA 91411
Tel: (818) 787-8550
Fax: (818) 901-7451
info@sikand.com

X:\CAD\3099-037\Exhibits\Zhi-Approved TM Density.dwg



Residential Development Breakdown			
	P.A.	CREEK AVOIDANCE (Ac.)	CREEK AVOIDANCE (DU)
PHASE 1	1	N/A	N/A
	2	N/A	N/A
		N/A	N/A
	3	N/A	N/A
	4	N/A	N/A
	5	3.8	44
	6	N/A	N/A
	7	32.0	354
	8		
	9	N/A	N/A
	10	N/A	N/A
	11	N/A	N/A
	12	15.8	15
	13	N/A	N/A
	14	N/A	N/A
	15	N/A	N/A
	16	N/A	N/A
	17	2.7	17
	18	12.2	67
	19		
	20	17.5	87
	21	6.4	49
	22	8.6	60
	23	13.0	101
	24	17.6	126
	25	17.9	95
	26	5.9	32
	27	1.2	8
	28	12.1	89
	AFFORDABLE HOUSING/ LIVF WORK	-	165
SUBTOTAL		166.7	1309
PHASE 2	29	N/A	N/A
	30	N/A	N/A
	31	10.2	53
	32	6.5	20
	33	18.3	71
	34		
	35	4.8	46
	36	8.3	50
	37	School	School
	38		
	39	14.2	66
	40		
	41	4	10
	43	7.9	34
	44	2.8	10
	45	5.4	15
	46	15	131
	47	N/A	N/A
SUBTOTAL		97.4	506
TOTAL		264.1	1,815

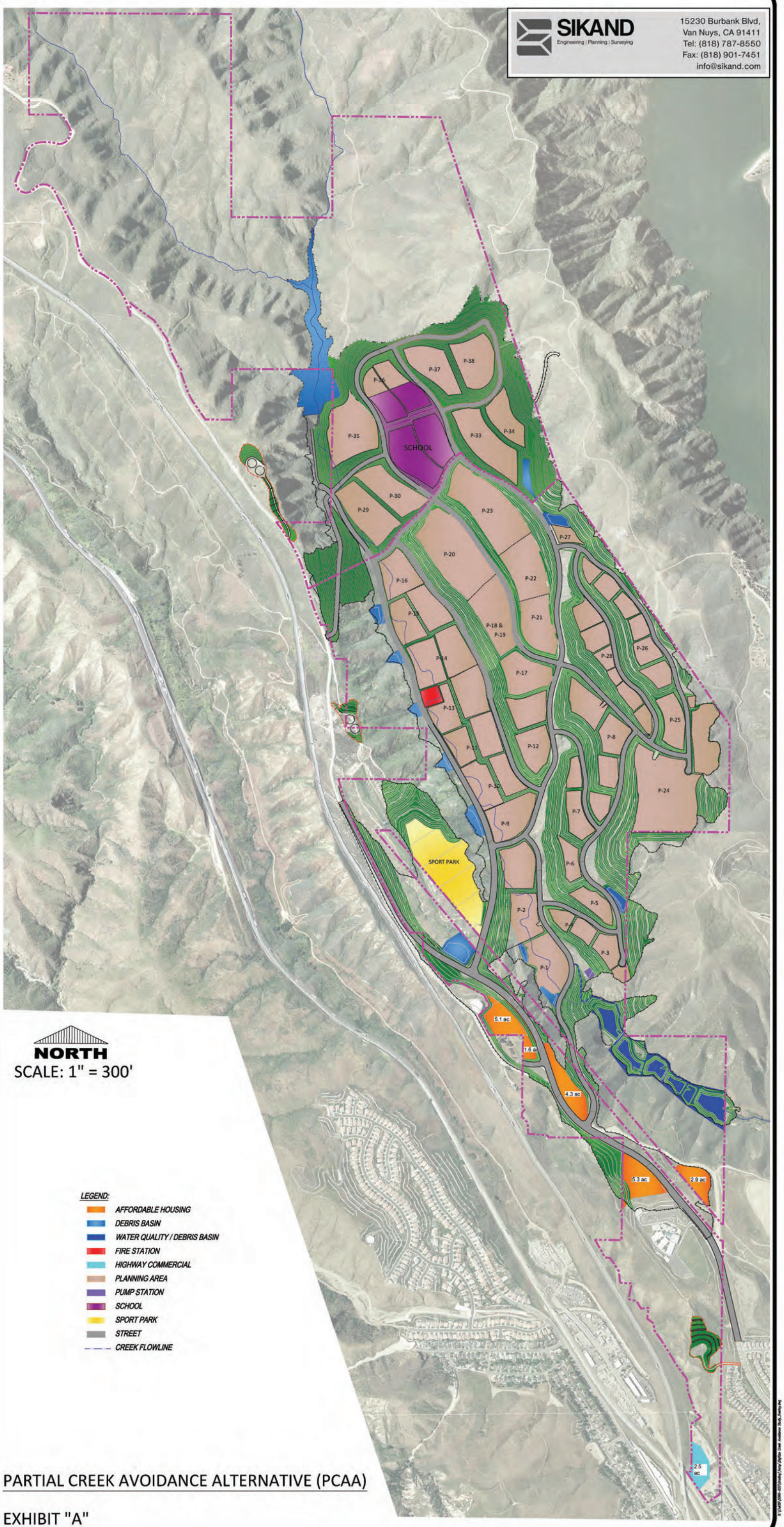
CREEK AVOIDANCE DENSITY EXHIBIT
(11-02-2022)

N

SCALE: 1" = 300'

SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd,
Van Nuys, CA 91411
Tel: (818) 787-8550
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info@sikand.com

SIKAND
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Van Nuys, CA 91411
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Fax: (818) 901-7451
info@sikand.com



PARTIAL CREEK AVOIDANCE ALTERNATIVE (PCAA)

EXHIBIT "A"

APPENDIX D-3

NORTHLAKE DRAINAGE MEMORANDUM

SIKAND
Engineering | Planning | Surveying

15230 Burbank Blvd., #100 Van Nuys, CA 91411
Phone 818.787.8550 Fax 818.901.7451
www.sikand.com Email: info@sikand.com

MEMORANDUM



TO: VIA email

FROM: Doug Farmer, PE

DATE: May 17, 2023

SUBJECT: Northlake Drainage

W.O.: 5099-033-35

In response to the comment below for the Northlake project regarding drainage related questions:

2.3.4.4 Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Per the approved hydrology study and latest county policies, the project has been designed with upstream debris basins. These basins are designed to contain debris flows from upstream natural areas which have burned in wildfires. The flows are conveyed into basins where the debris will settle and clear water will be conveyed downstream through a conduit. Per the approved hydrology, proposed flows exiting the project will mimic the existing conditions and as such would not result in downslope or downstream flooding.

APPENDIX D-4

NORTHLAKE HYDROLOGY STUDY

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
HYDROLOGY UNIT

TO: Sikand Engineering
15230 Burbank Blvd
Van Nuys, CA 91411

Date: 04/27/17

REVIEW OF HYDROLOGY STUDY

TR NO. **073336** **DATE OF REPORT** **04/27/17**

We have reviewed your Hydrology Study.

[X] The Hydrology Study has been approved.

[X] Refer to comments below:

COMMENTS:

1. Infiltration rate for the project site has been assumed but must be approved by Geotechnical and Materials Engineering Division prior to the grading plans. Any changes to the assumed infiltration rate may require a revised Hydrology Study and/or Tentative Map.

2. Work within soft bottom drainage areas (which may include but is not limited to soft bottom basins, channels, watercourses, grade to drain) will require maintenance permits from Fish and Game, Army Corps of Engineers, and RWQCB prior to approval of the storm drain, and the permits must be still active prior to acceptance.

3. A Drainage Benefit Assessment Area must be established prior to the recordation of the final map. This DBAA will be to finance the future ongoing maintenance and capital replacement of all water quality devices/systems identified to be maintained by the County of Los Angeles.

REVIEWED BY _____
Vilong Truong (626) 458-4921

REGISTERED PROFESSIONAL ENGINEER
VILONG TRUONG
NO. C82680
CIVIL
STATE OF CALIFORNIA

APPROVED BY: _____

DRAINAGE CONCEPT

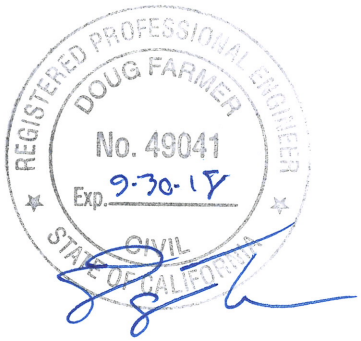
FOR

Vesting TTM No. 073336
(Northlake Phase 1)

IN THE UNINCORPORATED AREA OF
LOS ANGELES COUNTY

Prepared For:

Northlake Associates, LLC
1999 Avenue of the Stars, Suite 2850, Los Angeles, CA 90067



Prepared By:

SIKAND
Engineering | Planning | Surveying

15230 Burbank Blvd., Suite 100, Van Nuys, Ca 91411
Tel: (818) 787-8550; Fax: (818) 901-7451

HYDROLOGY STUDY APPROVED

CHECKED BY: _____ RCE NO. 82680 DATE 4/27/2017

APPROVED BY: _____ DATE 4/27/2017

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

W.O.: 5090-033-35
Date: 04-27-17

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Project Description
Hydrologic Criteria & Methodology
Summary

Section 2 **HYDROLOGIC INFORMATION**

Section 3 **EXISTING CONDITION**

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TC & MODRAT Calculations
Clear Frequency (50, 25, 10, 5, 2-yr, and LID)
TC & MODRAT Calculations
Hydrology Map

Section 4 **PROPOSED CONDITION (Pre-Retarding)**

Design Frequency (Q_B and Q_{B+D})
TC & MODRAT Calculations
Clear Frequency (50, 25, 10, 5, 2-yr, and LID)
TC & MODRAT Calculations
Hydrology Map
PD 2443 Reference Plans

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Bulking Calculations
Debris Basin Calculations & Exhibits

Section 6 **FLOOD HAZARD CALCULATIONS**

Exsiting & Proposed Condition HECRAS Results
Flood Hazard Map/ Section Exhibit

Section 7 **BIOFILTRATION BASIN SIZING CALCULATIONS**

APPENDIX **LOW IMPACT DEVELOPMENT PLAN**

Northlake Specific Plan and VTTM No. 073336
Low Impact Development Plan, by Geosyntec Consultants, Feb. 2016

Section 1

Purpose of the Study

The purpose of this study is to analyze the hydrological impacts of the proposed site development against its pre-development receiving outlet conditions; to provide respective mitigation solutions and related BMPs, to comply with the requirements established by the County of Los Angeles and the State of California; and, to provide the criteria for the design of the on-site storm drain systems and other drainage devices.

Project Description

The site is located between the west side of the Castaic Lake and the east side of the Golden State Freeway (Interstate 5), in the unincorporated area of Los Angeles County in Castaic, State of California (See Section 2, Vicinity Map).

The project lies in the middle of the drainage path of Grasshopper Canyon, and is currently undeveloped. The natural drainage pattern of the canyon flows from northwest to southeast. The natural outlet point of the site at the tract boundary is about approximately 2880 feet of natural canyon, northwest and upstream of the Castaic Lagoon. No portion of the project site is within the any floodway or floodplain, according to the FEMA Firm Map (See Section 2, Firm Map)

PROPOSED CONDITION: The project is mostly residential development, consisting of single-family and multi-family residential homes. It is also comprised of a number of park sites, open spaces, tank site, debris basins, and water quality/mitigation basin. The onsite storm drain conveyance is divided into two (2) systems prior to discharging back to the natural canyon: Clean water system, which conveys runoff from the proposed development areas; and, Dirty water system, which conveys runoff coming from the debris basins and areas with natural condition tributaries. The clean water system outlets into 5 proposed retarding basins (combined basin for both retention and detention) located downstream of the development. Design spillways are located south of each basin, and conveys the excess flow out of each basin. Discharge from the southerly most basin, Basin E, will join the Dirty water system to discharge back into the natural canyon.

Hydrologic Criteria & Methodology

This report follows the hydrologic criteria and methodology set forth by Los Angeles County Department of Public Works, as explained in its “Hydrology Manual”, “Sedimentation Manual”. Water Quality requirements are based on the LID Ordinance.

The following are the criteria used in the calculations:

- Design Storm Frequency :
  50-yr for undeveloped areas and developed sump areas,
  25-yr for developed areas.
- Soil Type Number = 094
- Basin Name = Santa Clara
- DPA Zones = 3 and 5
- Peak Bulking Factor
  - DPA Zone 3 = 1.620 (for areas ≤ 64 ac)
  - DPA Zone 5 = 1.465 (for areas ≤ 64 ac)

- Debris Production:
  - DPA Zone 3 = 218.75 cy/ac (for areas ≤ 64 ac)
  - DPA Zone 5 = 128.125 cy/ac (for areas ≤ 64 ac)
- Isohyet = 5.8" (50-yr, 24-hr)
- % Imperviousness:
  1% for undeveloped areas,
  5% for graded, landscaped, or park areas,
  42% for single-family residential areas,
  86% for multi-family residential areas,
  91% for paved street areas.

Time of Concentration (TC) and design Peak Flow (Q) for each subarea are calculated using the TC Calculator. Burning of flows, flood routing and confluence Peak Qs are calculated using F0601M program, also know as the Modified Rational Method program (MODRAT) (See Sections 3 & 4, TC and MODRAT Calculations).

This report provides calculations for all subareas within the Existing Condition and subareas up to Node 90C for the Proposed Condition.

Routing output, Cumulative Hydrograph for Nodes 64A (Natural subareas) and 90C (Developed Subareas), and an Individual Hydrograph for Node 102A, have been calculated and provided to Geosyntec for use in the retention basin analysis and outlet node calculations.

Routing and Hydrograph output has been included in Section 4 of this report for all storm events. The Hydrographs were then utilized by Geosyntec as a basis for their modeling. Refer to Geosyntec's report for calculations downstream of Node 90C, and for final Outlet Node conditions for all storm events.

Debris Production Volumes are calculated using the DPR Chart for undeveloped areas under single DPA Zone; except for the Existing Condition outlet, which uses multiple DPA Zones; and bulking of the flows are obtained using the Peak Bulk Factors Chart for undeveloped areas under single DPA Zone (See Section 2 for Charts; Section 5 for Calculations).

Refer to Geosyntec's report for basin Retarding calculations

Summary

The impacts of increased flow (ΔQ) and increased volume (ΔVol) due to the proposed development will be mitigated onsite using the combination effect of retention and detention of the proposed retarding basins, for the design storm event.

Comparing the design frequency between the Pre-Development and Post-Development/Post Retarding conditions at the outlet point, the proposed condition discharge does not exceed the existing condition discharge, as shown below.

Design Frequency Summary, Post-Retarding:

	Pre-Development				*Post-Development / Post-Retarding			
	Area (ac)	**Q**b (cfs)	**Q**bb (cfs)	**DPV** (cy)	**Area** (ac)	**Q**b+d (cfs)	**Q**bb+d (cfs)	**DPV** (cy)
OUTLET	2108.9	2899.2	4064.8	143,392	2154.4	2730.5	2739.9	2,050

**Refer to Geosyntec's Report for Post-Development POST-RETARDING Calculations and Outlet Node Flows.*

Similarly, for the hydromodification clear frequency comparison, Post-Development/Post-Retarding condition Volumes, Velocities, and Depth/Width ratios do not exceed the existing condition values, as shown below.

Clear Frequency Summary, Post-Retarding:

	Pre-Development				Post-Development					Delta			
Freq.	**Q** (cfs)	**Vol** (ac-ft)	**Velocity** (ft/s)	**Depth/Width** (ft/ft)	**Q** (cfs)	**Vol** (ac-ft)	**Geomorphically Significant Flow Volume, > 11 cfs**	**Velocity** (ft/s)	**Depth/ Width** (ft/ft)	**%Δ Q**	**%Δ Volume**	**%Δ Velocity**	**%Δ Depth/ Width**
50	2817.3	326.4	7.24	0.12	2812.7	340.6	316.9	7.24	0.12	-0.2	-3	0	0
25	2415.4	270.6	6.89	0.11	2180.6	269.4	245.7	6.68	0.11	-10	-9	-3	-2
10	1636.4	175.2	6.12	0.11	1423.8	183.5	160.5	5.88	0.11	-13	-8	-4	-1
5	1243.5	136.0	5.65	0.11	1019.3	129.8	112.6	5.33	0.10	-18	-17	-6	-2
2	535.0	69.4	4.55	0.10	469.3	67.2	54.9	4.42	0.10	-12	-21	-3	0

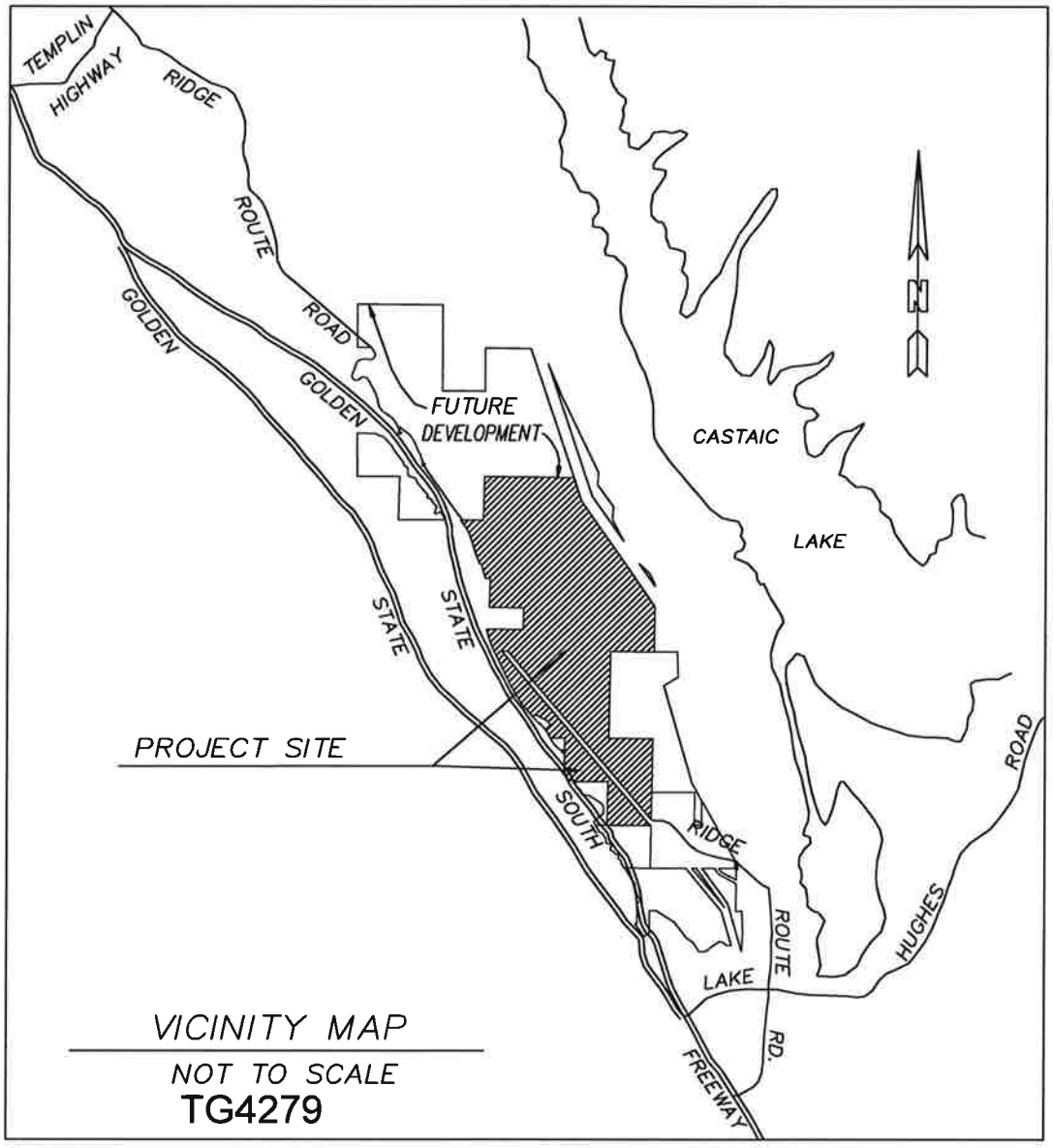
Pre and Post Development Q, Volume, Velocity, and Depth/Width at Outlet Node provided by Geosyntec

**Refer to Geosyntec's Report for Post-Development POST-RETARDING Calculations and Outlet Node Flows.*

After mitigation, the Volumes, Velocities, and Depth/Width ratios for all frequencies have decreased to below the existing condition values.

Preliminary alignment and layout of the drainage device, swales, detention/retention combination, and storm drain system are shown on the Proposed Condition Map (see Section 4).

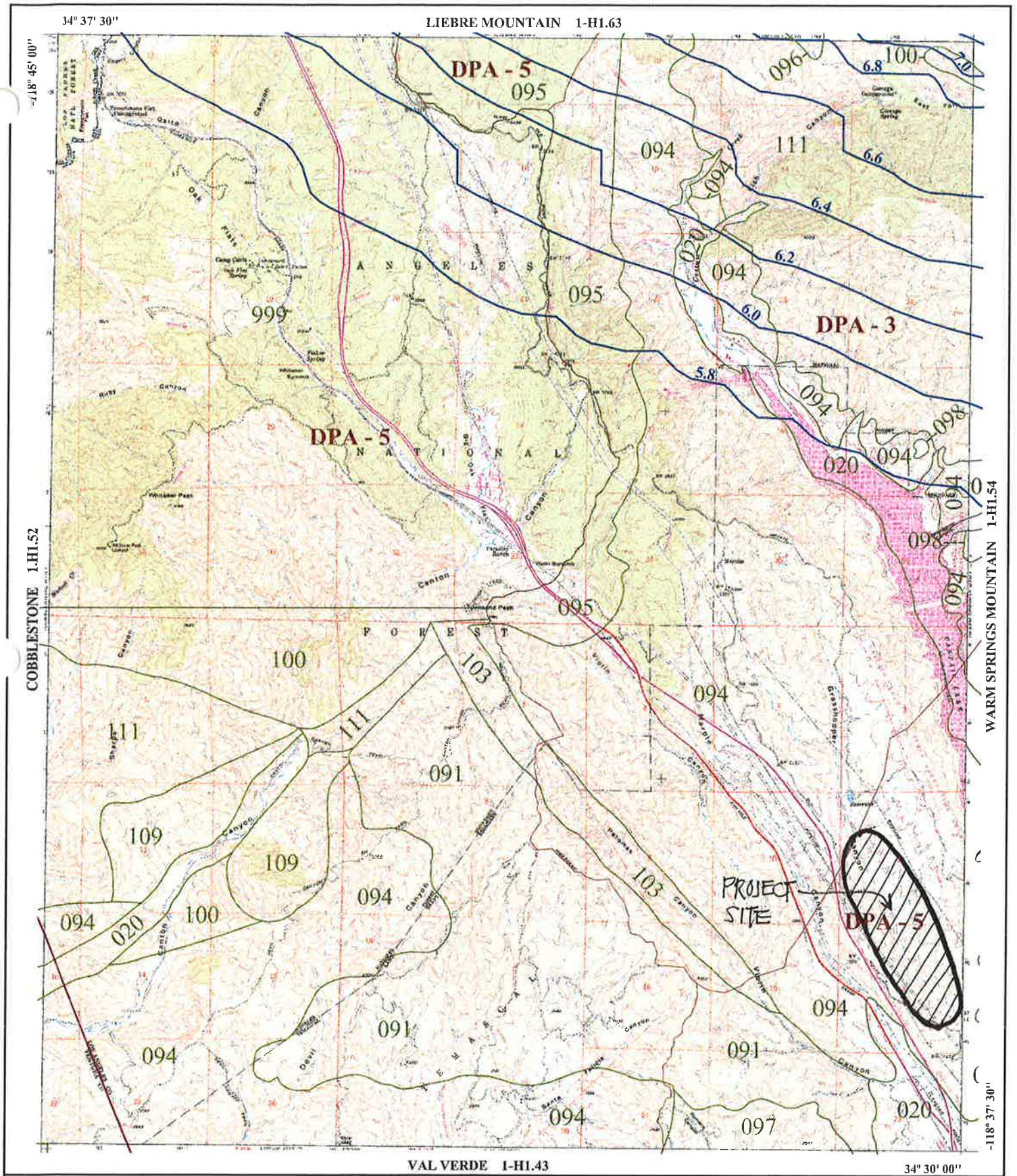
Section 2



VICINITY MAP

NOT TO SCALE

TG4279

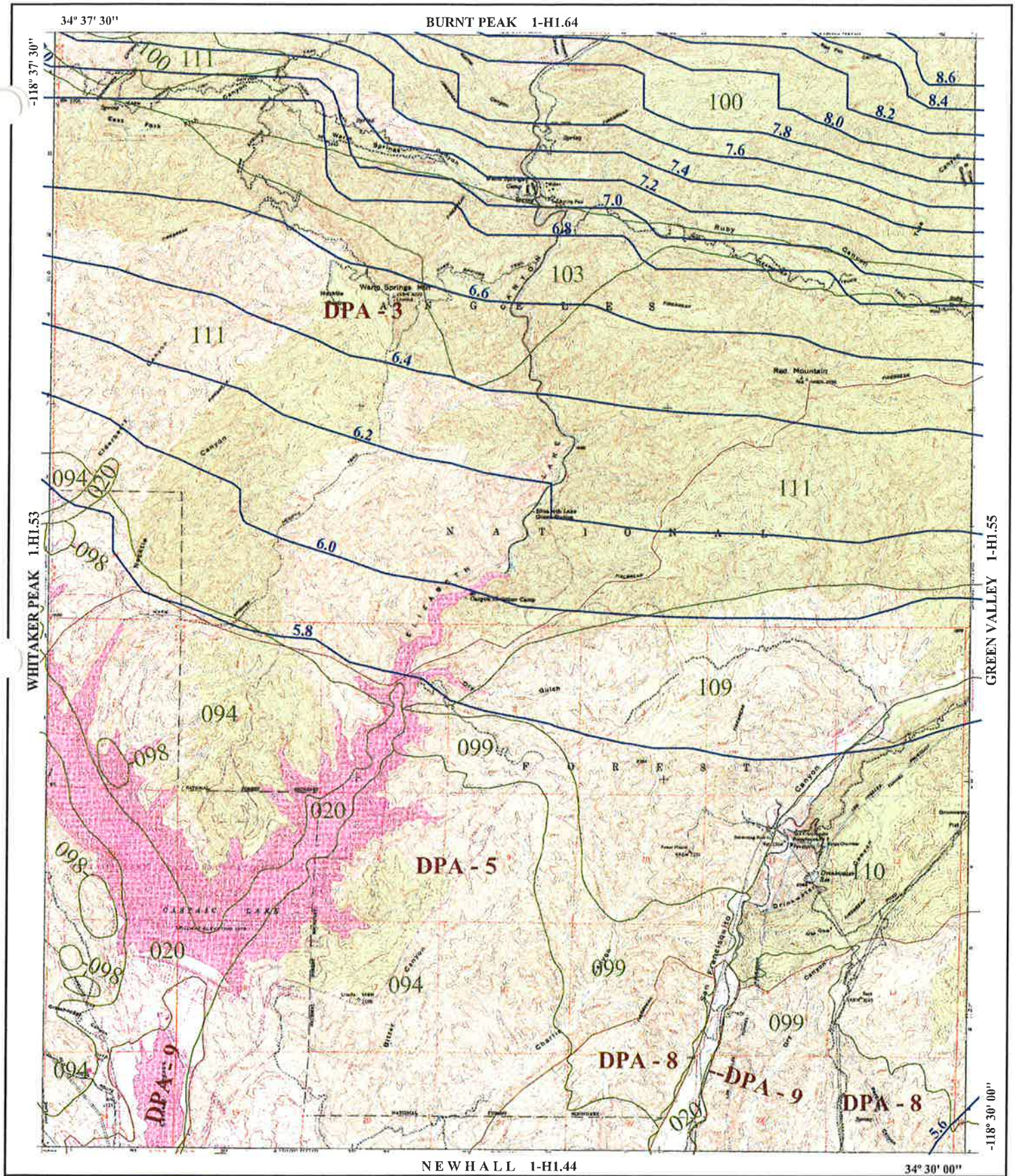


25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

WHITAKER PEAK
50-YEAR 24-HOUR ISOHYET

1-H1.53

LOS ANGELES COUNTY PUBLIC WORKS
Public Service That Works



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

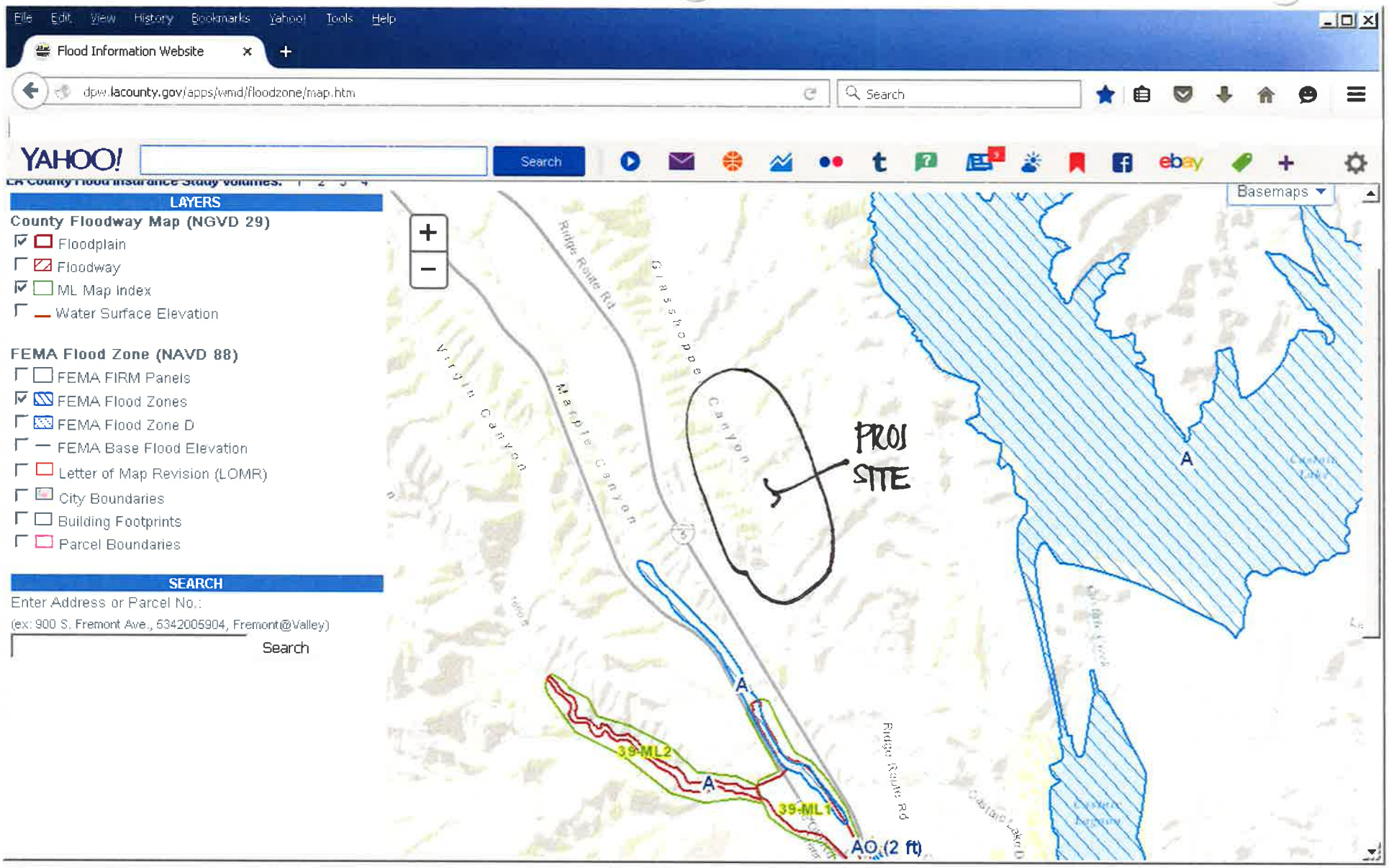
1 0 1 2 Miles

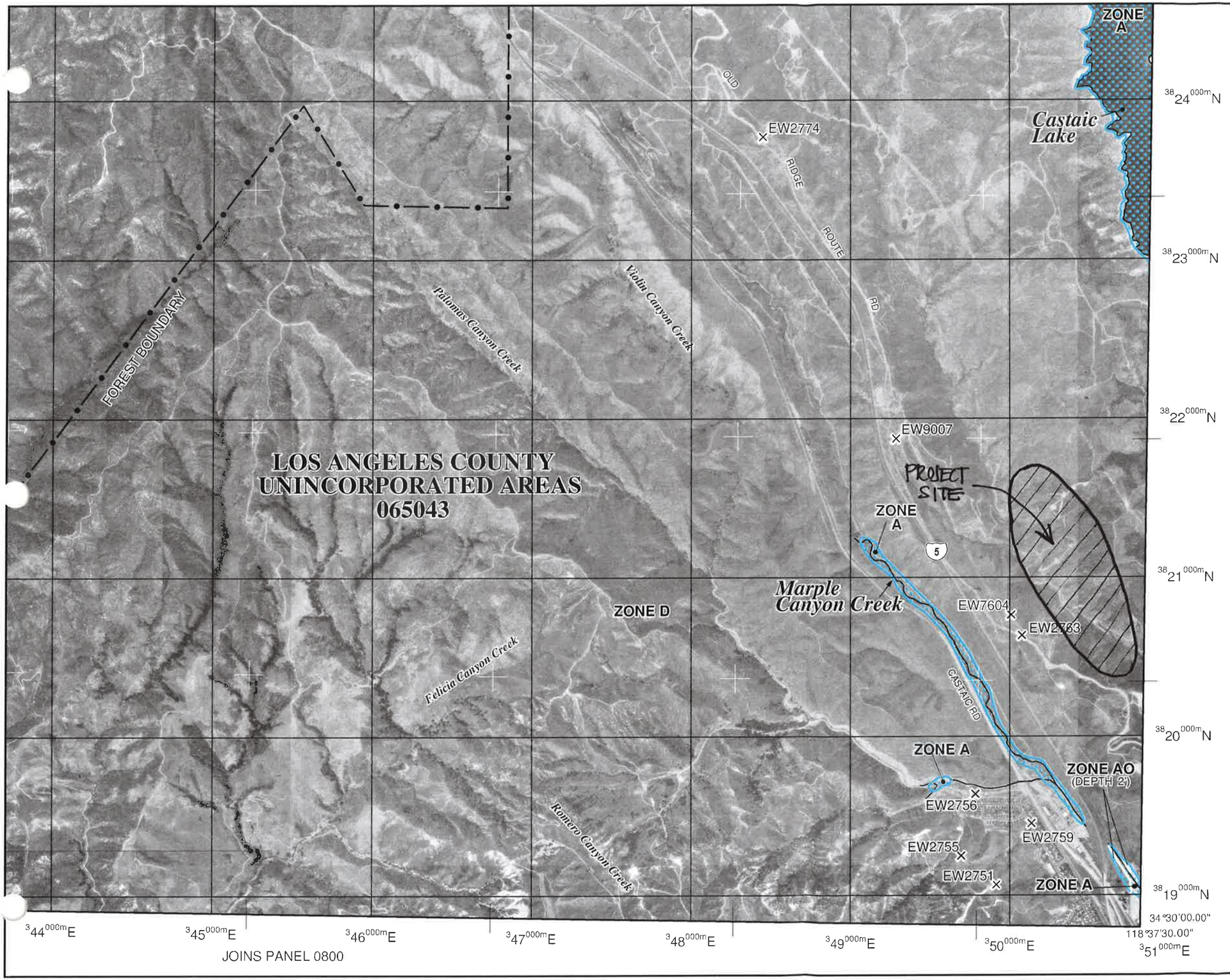
25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

WARM SPRINGS MOUNTAIN 50-YEAR 24-HOUR ISOHYET

1-H1.54

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works


File Edit View History Bookmarks Yahoo! Tools Help
Flood Information Website
dpw.lacounty.gov/apps/wmd/floodzone/map.htm
Search
YAHOO!
Search
LA County Flood Insurance Study Volumes: 1 2 3 4
LAYERS
County Floodway Map (NGVD 29)
Floodplain
Floodway
ML Map Index
Water Surface Elevation
FEMA Flood Zone (NAVD 88)
FEMA FIRM Panels
FEMA Flood Zones
FEMA Flood Zone D
FEMA Base Flood Elevation
Letter of Map Revision (LOMR)
City Boundaries
Building Footprints
Parcel Boundaries
SEARCH
Enter Address or Parcel No.:
(ex: 900 S. Fremont Ave., 5342005904, Fremont@Valley)
Search
Basemaps
Ridge Route Rd
Maple Canyon
Virgin Canyon
Grapevine Canyon
PROJ SITE
A
A
A
39-ML2
39-ML1
AO (2 ft)



...e Flood Insurance Study report for this jurisdiction.

...ce is available in this community, contact your insurance ...d Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

0 600 1200 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0575F

FIRM

FLOOD INSURANCE RATE MAP

LOS ANGELES COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 575 OF 2350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	065043	0575	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06037C0575F

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy **of** a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood **Map** Store at www.msc.fema.gov

he Flood Insurance Study report for this jurisdiction.

nce is available in this community, contact your insurance
d Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

0 600 1200

PANEL 0600F

FIRM

FLOOD INSURANCE RATE MAP

LOS ANGELES COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 600 OF 2350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	065043	0600	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06037C0600F

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

ZONE D
ZONE A
ZONE D
ZONE A
ZONE D
ZONE A
ZONE D
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ZONE D
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ZONE D
ZONE D

FOREST B
BOUNDARY
FOREST BOUNDARY
RD
HUGHES LAKE
LAKE HUGHES
Bitter Canyon Creek
Charlie Canyon
Castaic Tunnel
Spillway
Dam
Castaic Lake
Castaic Lagoon
RIDGE ROUTE RD
Violin Canyon Creek
Levee

1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN RESERVOIR

1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL

LOS ANGELES COUNTY
UNINCORPORATED AREAS
065043

2020000 FT
2015000 FT
2010000 FT
2005000 FT
34°30'00.00"
118°37'30.00"
$^{3}52^{000m}E$
$^{3}53^{000m}E$
$^{3}54^{000m}E$
$^{3}55^{000m}E$
$^{3}56^{000m}E$
$^{3}57^{000m}E$

JOINS PANEL 0805

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Proportion Impervious Data

Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

Code	Land Use Description	% Impervious
1271.03	Base Government Offices	91
1271.04	Base Fire Stations	91
1271.05	Base Non-Attended Public Parking Facilities	91
1271.06	Base Air Field	45
1271.07	Base Petroleum Refining and Processing	91
1271.08	Base Mineral Extraction - Oil and Gas	10
1271.09	Base Harbor Facilities	91
1271.10	Base Navigation Aids	47
1271.11	Base Developed Local Parks and Recreation	10
1271.12	Base Vacant Undifferentiated	1
1272	Vacant Area	2
1273	Air Field	45
1274	Former Base (Built-up Area)	65
1275	Former Base Vacant Area	2
1276	Former Base Air Field	91
1311	Manufacturing, Assembly, and Industrial Services	91
1312	Motion Picture and Television Studio Lots	82
1313	Packing Houses and Grain Elevators	96
1314	Research and Development	91
1321	Manufacturing	91
1322	Petroleum Refining and Processing	91
1323	Open Storage	66
1324	Major Metal Processing	91
1325	Chemical Processing	91
1331	Mineral Extraction - Other Than Oil and Gas	10
1332	Mineral Extraction - Oil and Gas	10
1340	Wholesaling and Warehousing	91
1411	Airports	91
1411.01	Airstrip	10
1412	Railroads	15
1412.01	Railroads-Attended Pay Public Parking Facilities	91
1412.02	Railroads-Non-Attended Public Parking Facilities	91
1412.03	Railroads-Manufacturing, Assembly, and Industrial Services	91
1412.04	Railroads-Petroleum Refining and Processing	91
1412.05	Railroads-Open Storage	66
1412.06	Railroads-Truck Terminals	91
1413	Freeways and Major Roads	91
1414	Park-and-Ride Lots	91
1415	Bus Terminals and Yards	91
1416	Truck Terminals	91
1417	Harbor Facilities	91
1418	Navigation Aids	47
1420	Communication Facilities	82
1420.01	Communication Facilities-Antenna	2

Code	Land Use Description	% Impervious
1431	Electrical Power Facilities	47
1431.01	Electrical Power Facilities-Powerlines (Urban)	2
1431.02	Electrical Power Facilities-Powerlines (Rural)	1
1432	Solid Waste Disposal Facilities	15
1433	Liquid Waste Disposal Facilities	96
1434	Water Storage Facilities	91
1435	Natural Gas and Petroleum Facilities	91
1435.01	Natural Gas and Petroleum Facilities-Manufacturing, Assembly, and In	91
1435.02	Natural Gas and Petroleum Facilities-Petroleum Refining and Processing	91
1435.03	Natural Gas and Petroleum Facilities-Mineral Extraction – Oil and Gas	10
1435.04	Natural Gas and Petroleum Facilities-Vacant Undifferentiated	1
1436	Water Transfer Facilities	96
1437	Improved Flood Waterways and Structures	100
1440	Maintenance Yards	91
1450	Mixed Transportation	90
1460	Mixed Transportation and Utility	91
1460.01	Mixed Utility and Transportation-Improved Flood Waterways and Structures	100
1460.02	Mixed Utility and Transportation-Railroads	15
1460.03	Mixed Utility and Transportation-Freeways and Major Roads	91
1500	Mixed Commercial and Industrial	91
1600	Mixed Urban	89
1700	Under Construction (Use appropriate value)	91
1810	Golf Courses	3
1821	Developed Local Parks and Recreation	10
1822	Undeveloped Local Parks and Recreation	2
1831	Developed Regional Parks and Recreation	2
1832	Undeveloped Regional Parks and Recreation	1
1840	Cemeteries	10
1850	Wildlife Preserves and Sanctuaries	2
1850.01	Wildlife-Commercial Recreation	90
1850.02	Wildlife-Other Special Use Facilities	86
1850.03	Wildlife-Developed Local Parks and Recreation	10
1860	Specimen Gardens and Arboreta	15
1870	Beach Parks	10
1880	Other Open Space and Recreation	10
2110	Irrigated Cropland and Improved Pasture Land	2
2120	Non-Irrigated Cropland and Improved Pasture Land	2
2200	Orchards and Vineyards	2
2300	Nurseries	15
2400	Dairy, Intensive Livestock, and Associated Facilities	42
2500	Poultry Operations	62
2600	Other Agriculture	42
2700	Horse Ranches	42

Code	Land Use Description	% Impervious
3100	Vacant Undifferentiated	1
3200	Abandoned Orchards and Vineyards	2
3300	Vacant With Limited Improvements (Use appropriate value)	42
3400	Beaches (Vacant)	1
4100	Water, Undifferentiated	100
4200	Harbor Water Facilities	100
4300	Marina Water Facilities	100
4400	Water Within a Military Installation	100

Section 3

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

50-yr Design Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
50	1A	40.9	0.01	50	94	2501	0.2	5.8	12	2.29	0.86	0.86	80.55
50	2A	50.6	0.01	50	94	2085	0.24	5.8	10	2.5	0.86	0.86	108.79
50	3A	48.8	0.01	50	94	1886	0.17	5.8	10	2.5	0.86	0.86	104.92
50	4A	37.8	0.01	50	94	1577	0.19	5.8	9	2.63	0.87	0.87	86.49
50	5A	46.9	0.01	50	94	2013	0.15	5.8	11	2.39	0.86	0.86	96.4
50	8B	55.4	0.01	50	94	1990	0.29	5.8	10	2.5	0.86	0.86	119.11
50	9B	51	0.01	50	94	2230	0.22	5.8	11	2.39	0.86	0.86	104.83
50	11A	46.3	0.01	50	94	2402	0.19	5.8	12	2.29	0.86	0.86	91.18
50	12A	46.7	0.01	50	94	2523	0.24	5.8	12	2.29	0.86	0.86	91.97
50	13A	55	0.01	50	94	2188	0.21	5.8	11	2.39	0.86	0.86	113.05
50	14A	52.8	0.01	50	94	2314	0.24	5.8	11	2.39	0.86	0.86	108.53
50	15A	52.6	0.01	50	94	2494	0.18	5.8	12	2.29	0.86	0.86	103.59
50	16A	23.5	0.01	50	94	1862	0.24	5.8	10	2.5	0.86	0.86	50.53
50	19C	26	0.01	50	94	1296	0.28	5.8	7	2.95	0.88	0.88	67.5
50	20C	48.7	0.01	50	94	2971	0.16	5.8	14	2.13	0.85	0.85	88.17
50	22A	49.7	0.01	50	94	3412	0.15	5.8	15	2.06	0.85	0.85	87.02
50	25D	45	0.01	50	94	2381	0.23	5.8	11	2.39	0.86	0.86	92.49
50	26D	31.1	0.01	50	94	2454	0.22	5.8	12	2.29	0.86	0.86	61.25
50	27D	49.3	0.01	50	94	2374	0.18	5.8	12	2.29	0.86	0.86	97.09
50	28D	47.5	0.01	50	94	2966	0.16	5.8	14	2.13	0.85	0.85	86
50	29D	29.2	0.01	50	94	2182	0.19	5.8	11	2.39	0.86	0.86	60.02
50	30D	48.6	0.01	50	94	1877	0.24	5.8	10	2.5	0.86	0.86	104.49
50	31D	41.1	0.01	50	94	2744	0.19	5.8	13	2.21	0.85	0.85	77.21
50	35A	41.3	0.01	50	94	2799	0.18	5.8	13	2.21	0.85	0.85	77.58
50	36A	46.4	0.01	50	94	2330	0.22	5.8	11	2.39	0.86	0.86	95.37
50	37A	26.8	0.01	50	94	1890	0.25	5.8	10	2.5	0.86	0.86	57.62
50	38A	64.1	0.01	50	94	3261	0.14	5.8	15	2.06	0.85	0.85	112.24
50	39A	41.6	0.01	50	94	2268	0.21	5.8	11	2.39	0.86	0.86	85.5
50	42E	61.9	0.01	50	94	3825	0.15	5.8	17	1.95	0.84	0.84	101.39
50	43E	50.1	0.01	50	94	2265	0.18	5.8	12	2.29	0.86	0.86	98.67
50	44E	64.4	0.01	50	94	3261	0.15	5.8	15	2.06	0.85	0.85	112.76
50	46A	47.5	0.01	50	94	2761	0.16	5.8	13	2.21	0.85	0.85	89.23
50	47A	38.8	0.01	50	94	4397	0.14	5.8	18	1.9	0.84	0.84	61.92
50	48A	38.8	0.01	50	94	4016	0.14	5.8	17	1.95	0.84	0.84	63.55
50	49A	25.9	0.01	50	94	1562	0.24	5.8	8	2.77	0.87	0.87	62.42
50	50A	68.3	0.01	50	94	3772	0.11	5.8	17	1.95	0.84	0.84	111.88

50	53F	45.6	0.01	50	94	2373	0.13	5.8	12	2.29	0.86	0.86	89.8
50	54F	53.1	0.01	50	94	3206	0.14	5.8	15	2.06	0.85	0.85	92.98
50	56A	46	0.01	50	94	3001	0.16	5.8	14	2.13	0.85	0.85	83.28
50	57A	50.8	0.01	50	94	3314	0.15	5.8	15	2.06	0.85	0.85	88.95
50	60B	53	0.01	50	94	3978	0.1	5.8	18	1.9	0.84	0.84	84.59
50	61B	38.3	0.01	50	94	1840	0.16	5.8	10	2.5	0.86	0.86	82.35
50	63A	47.7	0.01	50	94	2864	0.18	5.8	13	2.21	0.85	0.85	89.6
50	64A	50	0.01	50	94	2172	0.24	5.8	11	2.39	0.86	0.86	102.77
50	65A	45.7	0.01	50	94	1777	0.28	5.8	9	2.63	0.87	0.87	104.57
50	66A	38.3	0.01	50	94	1612	0.25	5.8	9	2.63	0.87	0.87	87.63
50	OP1	2.5	0.01	50	94	250	0.05	5.8	5	3.46	0.89	0.89	7.72
50	OP5	4	0.01	50	94	250	0.4	5.8	5	3.46	0.89	0.89	12.36

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006     1    1A 294  140.912A29                                    G1
006     1    2A 294  150.610A292 1320 10000
006     1    3A 294  148.810A292  960 10000
006     1    4A 294  137.8 9A292 1272 08000
006     1    5A 294  146.911A29
006     1    6A  94       99A29
006     1    7A  94       99A29
006     1    8B 294  155.410A291 1656 12000
006     1    9B 294  151.011A29
006     1   10AB 94         A292 1663 08000
006     1   11A 294  146.312A29
006     1   12A 294  146.712A29
006     1   13A 294  155.011A292 1584 04000
006     1   14A 294  152.811A29
006     1   15A 294  152.612A292 1085 05000
006     1   16A 294  123.510A29
006     1   17A  94       99A29
006     1   18A  94       99A29
006     1   19C 294  126.0 7A292 1584 09000
006     1   20C 294  148.714A29
006     1   21AC 94         A292 1337 05000
006     1   22A 294  149.715A29
006     1   23A  94       99A29
006     1   24A  94       99A29
006     1   25D 294  145.011A29
006     1   26D 294  131.112A292 1020 10000
006     1   27D 294  149.312A292 1290 10000
006     1   28D 294  147.514A29
006     1   29D 294  129.211A292 1232 10000
006     1   30D 294  148.610A292 1423 08000
006     1   31D 294  141.113A29
006     1   32AD 94         A292  827 03000
006     1   33A  94       99A29
006     1   34A  94       99A29
006     1   35A 294  141.313A292  488 04000
006     1   36A 294  146.411A292 1164 03000
006     1   37A 294  126.810A29
006     1   38A 294  164.115A292 1779 04000
006     1   39A 294  141.611A29
006     1   40A  94       99A29
006     1   41A  94       99A29
006     1   42E 294  161.917A29
006     1   43E 294  150.112A292 1851 08000
006     1   44E 294  164.415A29
006     1   45AE 94         A292 1975 03000
006     1   46A 294  147.513A29
006     1   47A 294  138.818A29
006     1   48A 294  138.817A292  888 04000
006     1   49A 294  125.9 8A292 1226 03000
006     1   50A 294  168.317A29
006     1   51A  94       99A29
006     1   52A  94       99A29
006     1   53F 294  145.612A291 2348 11000
006     1   54F 294  153.115A29
006     1   55AF 94         A292 1223 02000
006     1   56A 294  146.014A292 1272 02000
006     1   57A 294  150.815A29
006     1   58A  94       99A29
006     1   59A  94       99A29
006     1   60B 294  153.018A291 1480 11000
006     1   61B 294  138.310A29
006     1   62AB 94         A292  589 03000
006     1   63A 294  147.713A292  826 02000
006     1   64A 294  150.011A292 1214 03000
006     1   65A 294  145.7 9A292 1165 02000
006     1   66A 294  138.3 9A29                                    2  2
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005     1    1A Northlake, Exist. DESIGN 50-yr BURNED
005     1   66A Northlake, Exist. DESIGN 50-yr BURNED, OUTLET HYD.
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Program Package Serial Number: 2083
02/13/15 FILE: EXD INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. DESIGN 50-yr BURNED

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	81.79	40.9	81.79	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	2A	50.6	111.78	91.5	193.57	2	1320.	.10000	.00	.00	0.	294	10	A29	.01
1	3A	48.8	107.80	140.3	295.20	2	960.	.10000	.00	.00	0.	294	10	A29	.01
1	4A	37.8	87.55	178.1	375.91	2	1272.	.08000	.00	.00	0.	294	9	A29	.01
1	5A	46.9	98.25	225.0	463.32	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	6A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	122.38	55.4	122.38	1	1656.	.12000	.00	.00	0.	294	10	A29	.01
1	9B	51.0	106.84	106.4	213.34	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	10AB	106.4	213.34	331.4	676.47	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	92.59	377.7	756.56	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	12A	46.7	93.39	424.4	841.37	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	13A	55.0	115.22	479.4	944.80	2	1584.	.04000	.00	.00	0.	294	11	A29	.01
1	14A	52.8	110.61	532.2	1023.37	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	15A	52.6	105.19	584.8	1118.22	2	1085.	.05000	.00	.00	0.	294	12	A29	.01
1	16A	23.5	51.91	608.3	1144.93	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	17A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	67.96	26.0	67.96	2	1584.	.09000	.00	.00	0.	294	7	A29	.01
1	20C	48.7	90.12	74.7	152.92	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	21AC	74.7	152.92	683.0	1274.91	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	89.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	23A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	94.27	45.0	94.27	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	26D	31.1	62.20	76.1	156.47	2	1020.	.10000	.00	.00	0.	294	12	A29	.01
1	27D	49.3	98.59	125.4	253.67	2	1290.	.10000	.00	.00	0.	294	12	A29	.01
1	28D	47.5	87.90	172.9	338.17	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	29D	29.2	61.17	202.1	396.41	2	1232.	.10000	.00	.00	0.	294	11	A29	.01
1	30D	48.6	107.36	250.7	491.82	2	1423.	.08000	.00	.00	0.	294	10	A29	.01
1	31D	41.1	78.89	291.8	561.36	0	0.	.00000	.00	.00	0.	294	13	A29	.01
1	32AD	291.8	561.36	1024.5	1889.29	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	79.27	1065.8	1950.89	2	488.	.04000	.00	.00	0.	294	13	A29	.01
1	36A	46.4	97.20	1112.2	2008.46	2	1164.	.03000	.00	.00	0.	294	11	A29	.01
1	37A	26.8	59.20	1139.0	2021.58	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	38A	64.1	114.78	1203.1	2120.34	2	1779.	.04000	.00	.00	0.	294	15	A29	.01
1	39A	41.6	87.15	1244.7	2139.66	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	40A	.0	.00	1244.7	2139.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1244.7	2139.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	61.9	103.51	61.9	103.51	0	0.	.00000	.00	.00	0.	294	17	A29	.01
1	43E	50.1	100.19	112.0	203.71	2	1851.	.08000	.00	.00	0.	294	12	A29	.01
1	44E	64.4	115.32	176.4	313.07	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	45AE	176.4	313.07	1421.1	2413.19	2	1975.	.03000	.00	.00	0.	94	0	A29	.00
1	46A	47.5	91.17	1468.6	2433.68	0	0.	.00000	.00	.00	0.	294	13	A29	.01

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. DESIGN 50-yr BURNED

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
1	47A	38.8	62.98	1507.4	2487.97	0	0.	.00000	.00	.00	0.	294	18	A29	.01
1	48A	38.8	64.88	1546.2	2542.48	2	888.	.04000	.00	.00	0.	294	17	A29	.01
1	49A	25.9	63.46	1572.1	2548.91	2	1226.	.03000	.00	.00	0.	294	8	A29	.01
1	50A	68.3	114.22	1640.4	2617.61	0	0.	.00000	.00	.00	0.	294	17	A29	.01
1	51A	.0	.00	1640.4	2617.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	52A	.0	.00	1640.4	2617.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	53F	45.6	91.19	45.6	91.19	1	2348.	.11000	.00	.00	0.	294	12	A29	.01
1	54F	53.1	95.09	98.7	169.26	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	55AF	98.7	169.26	1739.1	2740.59	2	1223.	.02000	.00	.00	0.	94	0	A29	.00
1	56A	46.0	85.12	1785.1	2757.22	2	1272.	.02000	.00	.00	0.	294	14	A29	.01
1	57A	50.8	90.97	1835.9	2772.60	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	58A	.0	.00	1835.9	2772.60	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	59A	.0	.00	1835.9	2772.60	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	60B	53.0	86.03	53.0	86.03	1	1480.	.11000	.00	.00	0.	294	18	A29	.01
1	61B	38.3	84.60	91.3	157.98	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	62AB	91.3	157.98	1927.2	2862.59	2	589.	.03000	.00	.00	0.	94	0	A29	.00
1	63A	47.7	91.56	1974.9	2877.09	2	826.	.02000	.00	.00	0.	294	13	A29	.01
1	64A	50.0	104.75	2024.9	2890.28	2	1214.	.03000	.00	.00	0.	294	11	A29	.01
1	65A	45.7	105.85	2070.6	2895.76	2	1165.	.02000	.00	.00	0.	294	9	A29	.01
1	66A	38.3	88.71	2108.9	2899.20	0	0.	.00000	.00	.00	0.	294	9	A29	.01

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake, Exist. DESIGN 50-yr BURNED, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	46.31	200	47.37	300	49.78	400	52.49
500	55.65	600	59.75	700	64.92	800	82.24	900	135.06
1000	227.92	1050	317.78	1100	484.22	1110	539.82	1120	619.57
1130	740.54	1131	754.45	1132	768.38	1133	783.50	1134	799.21
1135	815.63	1136	832.66	1137	850.78	1138	869.72	1139	889.65
1140	910.22	1141	932.39	1142	955.48	1143	979.97	1144	1005.74
1145	1034.08	1146	1064.06	1147	1096.15	1148	1130.11	1149	1174.91
1150	1225.62	1151	1285.21	1152	1354.42	1153	1434.58	1154	1515.94
1155	1601.40	1156	1688.21	1157	1776.95	1158	1858.17	1159	1937.20
1160	2015.10	1161	2093.65	1162	2171.12	1163	2255.79	1164	2344.01
1165	2436.38	1166	2529.91	1167	2623.61	1168	2714.23	1169	2794.35
1170	2856.29	1171	2893.02	1172	2899.20	1173	2874.71	1174	2820.51
1175	2741.32	1176	2642.51	1177	2529.54	1178	2407.80	1179	2282.20
1180	2155.84	1181	2032.11	1182	1912.03	1183	1797.20	1184	1688.33
1185	1586.15	1186	1490.64	1187	1402.01	1188	1319.67	1189	1244.15
1190	1174.46	1191	1110.58	1192	1051.90	1193	998.23	1194	948.74
1195	903.24	1196	861.55	1197	823.31	1198	788.08	1199	755.65
1200	725.92	1201	697.33	1202	670.02	1203	644.52	1204	621.26
1205	600.28	1206	580.46	1207	561.33	1208	543.73	1209	527.72
1210	512.50	1211	498.33	1212	485.24	1213	473.66	1214	462.21
1215	450.88	1216	440.14	1217	429.29	1218	418.79	1219	408.95
1220	399.01	1221	389.69	1222	380.43	1223	371.68	1224	363.22
1225	354.85	1226	347.25	1227	339.71	1228	332.39	1229	325.83
1230	319.54	1231	314.25	1232	309.28	1233	304.25	1234	299.21
1235	293.88	1236	288.80	1237	283.72	1238	278.46	1239	273.82
1240	269.00	1241	264.31	1242	259.43	1243	254.83	1244	250.26
1245	245.53	1246	241.17	1247	236.90	1248	232.84	1249	229.06
1250	225.42	1251	222.58	1252	219.16	1253	216.03	1254	212.87
1255	209.69	1256	206.54	1257	203.41	1258	200.02	1259	196.88
1260	193.71	1261	190.57	1262	187.24	1263	184.44	1264	181.10
1265	178.08	1266	175.07	1267	172.07	1268	169.14	1269	166.25
1270	163.41	1271	160.63	1272	157.84	1273	155.18	1274	152.52
1275	149.87	1276	147.31	1277	144.79	1278	142.28	1279	139.94
1280	137.70	1281	135.66	1282	133.85	1283	132.22	1284	130.53
1285	128.83	1286	127.13	1287	125.42	1288	123.67	1289	121.96
1290	120.24	1291	118.53	1292	116.82	1293	115.14	1294	113.47
1295	111.81	1296	110.17	1297	108.56	1298	106.97	1299	105.40
1300	103.86	1310	90.61	1320	81.17	1330	74.57	1340	69.27
1350	65.50	1360	62.73	1370	60.58	1380	58.76	1390	57.10
1400	55.71	1420	53.24	1440	51.01	1460	45.98	1500	45.47

TOTAL VOLUME THIS HYDROGRAPH = 375.29(Ac.Ft)

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

25-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
25	1A	40.9	0.01	25	94	2501	0.2	5.1	13	1.94	0.84	0.84	66.65
25	2A	50.6	0.01	25	94	2085	0.24	5.1	11	2.1	0.85	0.85	90.32
25	3A	48.8	0.01	25	94	1886	0.17	5.1	11	2.1	0.85	0.85	87.11
25	4A	37.8	0.01	25	94	1577	0.19	5.1	10	2.2	0.85	0.85	70.69
25	5A	46.9	0.01	25	94	2013	0.15	5.1	12	2.02	0.85	0.85	80.53
25	8B	55.4	0.01	25	94	1990	0.29	5.1	11	2.1	0.85	0.85	98.89
25	9B	51	0.01	25	94	2230	0.22	5.1	12	2.02	0.85	0.85	87.57
25	11A	46.3	0.01	25	94	2402	0.19	5.1	13	1.94	0.84	0.84	75.45
25	12A	46.7	0.01	25	94	2523	0.24	5.1	13	1.94	0.84	0.84	76.1
25	13A	55	0.01	25	94	2188	0.21	5.1	12	2.02	0.85	0.85	94.44
25	14A	52.8	0.01	25	94	2314	0.24	5.1	12	2.02	0.85	0.85	90.66
25	15A	52.6	0.01	25	94	2494	0.18	5.1	13	1.94	0.84	0.84	85.72
25	16A	23.5	0.01	25	94	1862	0.24	5.1	11	2.1	0.85	0.85	41.95
25	19C	26	0.01	25	94	1296	0.28	5.1	8	2.44	0.86	0.86	54.56
25	20C	48.7	0.01	25	94	2971	0.16	5.1	15	1.82	0.83	0.83	73.57
25	22A	49.7	0.01	25	94	3412	0.15	5.1	17	1.71	0.82	0.82	69.69
25	25D	45	0.01	25	94	2381	0.23	5.1	12	2.02	0.85	0.85	77.27
25	26D	31.1	0.01	25	94	2454	0.22	5.1	13	1.94	0.84	0.84	50.68
25	27D	49.3	0.01	25	94	2374	0.18	5.1	13	1.94	0.84	0.84	80.34
25	28D	47.5	0.01	25	94	2966	0.16	5.1	15	1.82	0.83	0.83	71.75
25	29D	29.2	0.01	25	94	2182	0.19	5.1	12	2.02	0.85	0.85	50.14
25	30D	48.6	0.01	25	94	1877	0.24	5.1	11	2.1	0.85	0.85	86.75
25	31D	41.1	0.01	25	94	2744	0.19	5.1	14	1.88	0.84	0.84	64.91
25	35A	41.3	0.01	25	94	2799	0.18	5.1	14	1.88	0.84	0.84	65.22
25	36A	46.4	0.01	25	94	2330	0.22	5.1	12	2.02	0.85	0.85	79.67
25	37A	26.8	0.01	25	94	1890	0.25	5.1	11	2.1	0.85	0.85	47.84
25	38A	64.1	0.01	25	94	3261	0.14	5.1	17	1.71	0.82	0.82	89.88
25	39A	41.6	0.01	25	94	2268	0.21	5.1	12	2.02	0.85	0.85	71.43
25	42E	61.9	0.01	25	94	3825	0.15	5.1	18	1.67	0.82	0.82	84.77
25	43E	50.1	0.01	25	94	2265	0.18	5.1	12	2.02	0.85	0.85	86.02
25	44E	64.4	0.01	25	94	3261	0.15	5.1	16	1.76	0.83	0.83	94.08
25	46A	47.5	0.01	25	94	2761	0.16	5.1	15	1.82	0.83	0.83	71.75
25	47A	38.8	0.01	25	94	4397	0.14	5.1	21	1.55	0.81	0.81	48.71
25	48A	38.8	0.01	25	94	4016	0.14	5.1	19	1.62	0.82	0.82	51.54
25	49A	25.9	0.01	25	94	1562	0.24	5.1	10	2.2	0.85	0.85	48.43
25	50A	68.3	0.01	25	94	3772	0.11	5.1	19	1.62	0.82	0.82	90.73

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

25	53F	45.6	0.01	25	94	2373	0.13	5.1	14	1.88	0.84	0.84	72.01
25	54F	53.1	0.01	25	94	3206	0.14	5.1	17	1.71	0.82	0.82	74.46
25	56A	46	0.01	25	94	3001	0.16	5.1	15	1.82	0.83	0.83	69.49
25	57A	50.8	0.01	25	94	3314	0.15	5.1	17	1.71	0.82	0.82	71.23
25	60B	53	0.01	25	94	3978	0.1	5.1	20	1.59	0.82	0.82	69.1
25	61B	38.3	0.01	25	94	1840	0.16	5.1	11	2.1	0.85	0.85	68.37
25	63A	47.7	0.01	25	94	2864	0.18	5.1	15	1.82	0.83	0.83	72.06
25	64A	50	0.01	25	94	2172	0.24	5.1	12	2.02	0.85	0.85	85.85
25	65A	45.7	0.01	25	94	1777	0.28	5.1	10	2.2	0.85	0.85	85.46
25	66A	38.3	0.01	25	94	1612	0.25	5.1	10	2.2	0.85	0.85	71.62

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

10-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
10	1A	40.9	0.01	10	94	2501	0.2	4.1	16	1.42	0.8	0.8	46.46
10	2A	50.6	0.01	10	94	2085	0.24	4.1	13	1.56	0.81	0.81	63.94
10	3A	48.8	0.01	10	94	1886	0.17	4.1	13	1.56	0.81	0.81	61.66
10	4A	37.8	0.01	10	94	1577	0.19	4.1	12	1.62	0.82	0.82	50.21
10	5A	46.9	0.01	10	94	2013	0.15	4.1	14	1.51	0.81	0.81	57.36
10	8B	55.4	0.01	10	94	1990	0.29	4.1	12	1.62	0.82	0.82	73.59
10	9B	51	0.01	10	94	2230	0.22	4.1	14	1.51	0.81	0.81	62.38
10	11A	46.3	0.01	10	94	2402	0.19	4.1	15	1.46	0.8	0.8	54.08
10	12A	46.7	0.01	10	94	2523	0.24	4.1	15	1.46	0.8	0.8	54.55
10	13A	55	0.01	10	94	2188	0.21	4.1	14	1.51	0.81	0.81	67.27
10	14A	52.8	0.01	10	94	2314	0.24	4.1	14	1.51	0.81	0.81	64.58
10	15A	52.6	0.01	10	94	2494	0.18	4.1	16	1.42	0.8	0.8	59.75
10	16A	23.5	0.01	10	94	1862	0.24	4.1	12	1.62	0.82	0.82	31.22
10	19C	26	0.01	10	94	1296	0.28	4.1	10	1.77	0.83	0.83	38.2
10	20C	48.7	0.01	10	94	2971	0.16	4.1	18	1.34	0.79	0.79	51.55
10	22A	49.7	0.01	10	94	3412	0.15	4.1	21	1.25	0.78	0.78	48.46
10	25D	45	0.01	10	94	2381	0.23	4.1	15	1.46	0.8	0.8	52.56
10	26D	31.1	0.01	10	94	2454	0.22	4.1	15	1.46	0.8	0.8	36.32
10	27D	49.3	0.01	10	94	2374	0.18	4.1	16	1.42	0.8	0.8	56
10	28D	47.5	0.01	10	94	2966	0.16	4.1	18	1.34	0.79	0.79	50.28
10	29D	29.2	0.01	10	94	2182	0.19	4.1	14	1.51	0.81	0.81	35.71
10	30D	48.6	0.01	10	94	1877	0.24	4.1	12	1.62	0.82	0.82	64.56
10	31D	41.1	0.01	10	94	2744	0.19	4.1	17	1.38	0.79	0.79	44.81
10	35A	41.3	0.01	10	94	2799	0.18	4.1	17	1.38	0.79	0.79	45.03
10	36A	46.4	0.01	10	94	2330	0.22	4.1	15	1.46	0.8	0.8	54.2
10	37A	26.8	0.01	10	94	1890	0.25	4.1	12	1.62	0.82	0.82	35.6
10	38A	64.1	0.01	10	94	3261	0.14	4.1	20	1.28	0.78	0.78	64
10	39A	41.6	0.01	10	94	2268	0.21	4.1	15	1.46	0.8	0.8	48.59
10	42E	61.9	0.01	10	94	3825	0.15	4.1	22	1.22	0.77	0.77	58.15
10	43E	50.1	0.01	10	94	2265	0.18	4.1	15	1.46	0.8	0.8	58.52
10	44E	64.4	0.01	10	94	3261	0.15	4.1	20	1.28	0.78	0.78	64.3
10	46A	47.5	0.01	10	94	2761	0.16	4.1	18	1.34	0.79	0.79	50.28
10	47A	38.8	0.01	10	94	4397	0.14	4.1	25	1.15	0.76	0.76	33.91
10	48A	38.8	0.01	10	94	4016	0.14	4.1	23	1.19	0.77	0.77	35.55
10	49A	25.9	0.01	10	94	1562	0.24	4.1	11	1.69	0.82	0.82	35.89
10	50A	68.3	0.01	10	94	3772	0.11	4.1	24	1.17	0.77	0.77	61.53

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

10	53F	45.6	0.01	10	94	2373	0.13	4.1	16	1.42	0.8	0.8	51.8
10	54F	53.1	0.01	10	94	3206	0.14	4.1	20	1.28	0.78	0.78	53.02
10	56A	46	0.01	10	94	3001	0.16	4.1	19	1.31	0.78	0.78	47
10	57A	50.8	0.01	10	94	3314	0.15	4.1	20	1.28	0.78	0.78	50.72
10	60B	53	0.01	10	94	3978	0.1	4.1	25	1.15	0.76	0.76	46.32
10	61B	38.3	0.01	10	94	1840	0.16	4.1	13	1.56	0.81	0.81	48.4
10	63A	47.7	0.01	10	94	2864	0.18	4.1	18	1.34	0.79	0.79	50.5
10	64A	50	0.01	10	94	2172	0.24	4.1	14	1.51	0.81	0.81	61.16
10	65A	45.7	0.01	10	94	1777	0.28	4.1	12	1.62	0.82	0.82	60.71
10	66A	38.3	0.01	10	94	1612	0.25	4.1	11	1.69	0.82	0.82	53.08

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

5-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
5	1A	40.9	0.01	5	94	2501	0.2	3.4	19	1.08	0.75	0.75	33.13
5	2A	50.6	0.01	5	94	2085	0.24	3.4	16	1.17	0.77	0.77	45.59
5	3A	48.8	0.01	5	94	1886	0.17	3.4	16	1.17	0.77	0.77	43.96
5	4A	37.8	0.01	5	94	1577	0.19	3.4	14	1.25	0.78	0.78	36.86
5	5A	46.9	0.01	5	94	2013	0.15	3.4	17	1.14	0.76	0.76	40.63
5	8B	55.4	0.01	5	94	1990	0.29	3.4	15	1.21	0.77	0.77	51.62
5	9B	51	0.01	5	94	2230	0.22	3.4	17	1.14	0.76	0.76	44.19
5	11A	46.3	0.01	5	94	2402	0.19	3.4	18	1.11	0.76	0.76	39.06
5	12A	46.7	0.01	5	94	2523	0.24	3.4	18	1.11	0.76	0.76	39.4
5	13A	55	0.01	5	94	2188	0.21	3.4	17	1.14	0.76	0.76	47.65
5	14A	52.8	0.01	5	94	2314	0.24	3.4	17	1.14	0.76	0.76	45.75
5	15A	52.6	0.01	5	94	2494	0.18	3.4	19	1.08	0.75	0.75	42.61
5	16A	23.5	0.01	5	94	1862	0.24	3.4	15	1.21	0.77	0.77	21.89
5	19C	26	0.01	5	94	1296	0.28	3.4	11	1.4	0.8	0.8	29.12
5	20C	48.7	0.01	5	94	2971	0.16	3.4	22	1.01	0.74	0.74	36.4
5	22A	49.7	0.01	5	94	3412	0.15	3.4	24	0.97	0.74	0.74	35.67
5	25D	45	0.01	5	94	2381	0.23	3.4	17	1.14	0.76	0.76	38.99
5	26D	31.1	0.01	5	94	2454	0.22	3.4	18	1.11	0.76	0.76	26.24
5	27D	49.3	0.01	5	94	2374	0.18	3.4	18	1.11	0.76	0.76	41.59
5	28D	47.5	0.01	5	94	2966	0.16	3.4	22	1.01	0.74	0.74	35.5
5	29D	29.2	0.01	5	94	2182	0.19	3.4	17	1.14	0.76	0.76	25.3
5	30D	48.6	0.01	5	94	1877	0.24	3.4	15	1.21	0.77	0.77	45.28
5	31D	41.1	0.01	5	94	2744	0.19	3.4	20	1.06	0.75	0.75	32.67
5	35A	41.3	0.01	5	94	2799	0.18	3.4	20	1.06	0.75	0.75	32.83
5	36A	46.4	0.01	5	94	2330	0.22	3.4	17	1.14	0.76	0.76	40.2
5	37A	26.8	0.01	5	94	1890	0.25	3.4	15	1.21	0.77	0.77	24.97
5	38A	64.1	0.01	5	94	3261	0.14	3.4	24	0.97	0.74	0.74	46.01
5	39A	41.6	0.01	5	94	2268	0.21	3.4	17	1.14	0.76	0.76	36.04
5	42E	61.9	0.01	5	94	3825	0.15	3.4	26	0.93	0.73	0.73	42.02
5	43E	50.1	0.01	5	94	2265	0.18	3.4	18	1.11	0.76	0.76	42.26
5	44E	64.4	0.01	5	94	3261	0.15	3.4	24	0.97	0.74	0.74	46.23
5	46A	47.5	0.01	5	94	2761	0.16	3.4	21	1.03	0.75	0.75	36.69
5	47A	38.8	0.01	5	94	4397	0.14	3.4	29	0.89	0.72	0.72	24.86
5	48A	38.8	0.01	5	94	4016	0.14	3.4	28	0.9	0.72	0.72	25.14
5	49A	25.9	0.01	5	94	1562	0.24	3.4	13	1.29	0.78	0.78	26.06
5	50A	68.3	0.01	5	94	3772	0.11	3.4	28	0.9	0.72	0.72	44.26

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

5	53F	45.6	0.01	5	94	2373	0.13	3.4	20	1.06	0.75	0.75	36.25
5	54F	53.1	0.01	5	94	3206	0.14	3.4	24	0.97	0.74	0.74	38.12
5	56A	46	0.01	5	94	3001	0.16	3.4	22	1.01	0.74	0.74	34.38
5	57A	50.8	0.01	5	94	3314	0.15	3.4	24	0.97	0.74	0.74	36.46
5	60B	53	0.01	5	94	3978	0.1	3.4	29	0.89	0.72	0.72	33.96
5	61B	38.3	0.01	5	94	1840	0.16	3.4	16	1.17	0.77	0.77	34.5
5	63A	47.7	0.01	5	94	2864	0.18	3.4	21	1.03	0.75	0.75	36.85
5	64A	50	0.01	5	94	2172	0.24	3.4	16	1.17	0.77	0.77	45.05
5	65A	45.7	0.01	5	94	1777	0.28	3.4	14	1.25	0.78	0.78	44.56
5	66A	38.3	0.01	5	94	1612	0.25	3.4	13	1.29	0.78	0.78	38.54

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

2-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
2	1A	40.9	0.01	2	94	2501	0.2	2.2	30	0.57	0.6	0.6	13.99
2	2A	50.6	0.01	2	94	2085	0.24	2.2	24	0.63	0.63	0.63	20.08
2	3A	48.8	0.01	2	94	1886	0.17	2.2	24	0.63	0.63	0.63	19.37
2	4A	37.8	0.01	2	94	1577	0.19	2.2	21	0.67	0.65	0.65	16.46
2	5A	46.9	0.01	2	94	2013	0.15	2.2	27	0.59	0.62	0.62	17.16
2	8B	55.4	0.01	2	94	1990	0.29	2.2	23	0.64	0.63	0.63	22.34
2	9B	51	0.01	2	94	2230	0.22	2.2	26	0.6	0.62	0.62	18.97
2	11A	46.3	0.01	2	94	2402	0.19	2.2	29	0.57	0.61	0.61	16.1
2	12A	46.7	0.01	2	94	2523	0.24	2.2	29	0.57	0.61	0.61	16.24
2	13A	55	0.01	2	94	2188	0.21	2.2	26	0.6	0.62	0.62	20.46
2	14A	52.8	0.01	2	94	2314	0.24	2.2	27	0.59	0.62	0.62	19.31
2	15A	52.6	0.01	2	94	2494	0.18	2.2	30	0.57	0.6	0.6	17.99
2	16A	23.5	0.01	2	94	1862	0.24	2.2	22	0.65	0.64	0.64	9.78
2	19C	26	0.01	2	94	1296	0.28	2.2	17	0.74	0.68	0.68	13.08
2	20C	48.7	0.01	2	94	2971	0.16	2.2	30	0.57	0.6	0.6	16.66
2	22A	49.7	0.01	2	94	3412	0.15	2.2	30	0.57	0.6	0.6	17
2	25D	45	0.01	2	94	2381	0.23	2.2	28	0.58	0.61	0.61	15.92
2	26D	31.1	0.01	2	94	2454	0.22	2.2	29	0.57	0.61	0.61	10.81
2	27D	49.3	0.01	2	94	2374	0.18	2.2	29	0.57	0.61	0.61	17.14
2	28D	47.5	0.01	2	94	2966	0.16	2.2	30	0.57	0.6	0.6	16.25
2	29D	29.2	0.01	2	94	2182	0.19	2.2	27	0.59	0.61	0.61	10.51
2	30D	48.6	0.01	2	94	1877	0.24	2.2	23	0.64	0.63	0.63	19.6
2	31D	41.1	0.01	2	94	2744	0.19	2.2	30	0.57	0.6	0.6	14.06
2	35A	41.3	0.01	2	94	2799	0.18	2.2	30	0.57	0.6	0.6	14.12
2	36A	46.4	0.01	2	94	2330	0.22	2.2	27	0.59	0.61	0.61	16.7
2	37A	26.8	0.01	2	94	1890	0.25	2.2	23	0.64	0.63	0.63	10.81
2	38A	64.1	0.01	2	94	3261	0.14	2.2	30	0.57	0.6	0.6	21.92
2	39A	41.6	0.01	2	94	2268	0.21	2.2	27	0.59	0.61	0.61	14.97
2	42E	61.9	0.01	2	94	3825	0.15	2.2	30	0.57	0.6	0.6	21.17
2	43E	50.1	0.01	2	94	2265	0.18	2.2	28	0.58	0.61	0.61	17.73
2	44E	64.4	0.01	2	94	3261	0.15	2.2	30	0.57	0.6	0.6	22.02
2	46A	47.5	0.01	2	94	2761	0.16	2.2	30	0.57	0.6	0.6	16.25
2	47A	38.8	0.01	2	94	4397	0.14	2.2	30	0.57	0.6	0.6	13.27
2	48A	38.8	0.01	2	94	4016	0.14	2.2	30	0.57	0.6	0.6	13.27
2	49A	25.9	0.01	2	94	1562	0.24	2.2	20	0.68	0.65	0.65	11.45
2	50A	68.3	0.01	2	94	3772	0.11	2.2	30	0.57	0.6	0.6	23.36

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

2	53F	45.6	0.01	2	94	2373	0.13	2.2	30	0.57	0.6	0.6	15.6
2	54F	53.1	0.01	2	94	3206	0.14	2.2	30	0.57	0.6	0.6	18.16
2	56A	46	0.01	2	94	3001	0.16	2.2	30	0.57	0.6	0.6	15.73
2	57A	50.8	0.01	2	94	3314	0.15	2.2	30	0.57	0.6	0.6	17.37
2	60B	53	0.01	2	94	3978	0.1	2.2	30	0.57	0.6	0.6	18.13
2	61B	38.3	0.01	2	94	1840	0.16	2.2	24	0.63	0.63	0.63	15.2
2	63A	47.7	0.01	2	94	2864	0.18	2.2	30	0.57	0.6	0.6	16.31
2	64A	50	0.01	2	94	2172	0.24	2.2	25	0.62	0.63	0.63	19.53
2	65A	45.7	0.01	2	94	1777	0.28	2.2	21	0.67	0.65	0.65	19.9
2	66A	38.3	0.01	2	94	1612	0.25	2.2	20	0.68	0.65	0.65	16.93

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

LID Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)	Volume (ac-ft)
LID	1A	40.9	0.01	LID	94	2501	0.2	1.15	30	0.3	0.34	0.35	4.3	0.5
LID	2A	50.6	0.01	LID	94	2085	0.24	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	3A	48.8	0.01	LID	94	1886	0.17	1.15	30	0.3	0.34	0.35	5.1	0.6
LID	4A	37.8	0.01	LID	94	1577	0.19	1.15	30	0.3	0.34	0.35	4.0	0.5
LID	5A	46.9	0.01	LID	94	2013	0.15	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	8B	55.4	0.01	LID	94	1990	0.29	1.15	30	0.3	0.34	0.35	5.8	0.7
LID	9B	51	0.01	LID	94	2230	0.22	1.15	30	0.3	0.34	0.35	5.4	0.6
LID	11A	46.3	0.01	LID	94	2402	0.19	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	12A	46.7	0.01	LID	94	2523	0.24	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	13A	55	0.01	LID	94	2188	0.21	1.15	30	0.3	0.34	0.35	5.8	0.7
LID	14A	52.8	0.01	LID	94	2314	0.24	1.15	30	0.3	0.34	0.35	5.5	0.7
LID	15A	52.6	0.01	LID	94	2494	0.18	1.15	30	0.3	0.34	0.35	5.5	0.7
LID	16A	23.5	0.01	LID	94	1862	0.24	1.15	30	0.3	0.34	0.35	2.5	0.3
LID	19C	26	0.01	LID	94	1296	0.28	1.15	30	0.3	0.34	0.35	2.7	0.3
LID	20C	48.7	0.01	LID	94	2971	0.16	1.15	30	0.3	0.34	0.35	5.1	0.6
LID	22A	49.7	0.01	LID	94	3412	0.15	1.15	30	0.3	0.34	0.35	5.2	0.6
LID	25D	45	0.01	LID	94	2381	0.23	1.15	30	0.3	0.34	0.35	4.7	0.6
LID	26D	31.1	0.01	LID	94	2454	0.22	1.15	30	0.3	0.34	0.35	3.3	0.4
LID	27D	49.3	0.01	LID	94	2374	0.18	1.15	30	0.3	0.34	0.35	5.2	0.6
LID	28D	47.5	0.01	LID	94	2966	0.16	1.15	30	0.3	0.34	0.35	5.0	0.6
LID	29D	29.2	0.01	LID	94	2182	0.19	1.15	30	0.3	0.34	0.35	3.1	0.4
LID	30D	48.6	0.01	LID	94	1877	0.24	1.15	30	0.3	0.34	0.35	5.1	0.6
LID	31D	41.1	0.01	LID	94	2744	0.19	1.15	30	0.3	0.34	0.35	4.3	0.5
LID	35A	41.3	0.01	LID	94	2799	0.18	1.15	30	0.3	0.34	0.35	4.3	0.5
LID	36A	46.4	0.01	LID	94	2330	0.22	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	37A	26.8	0.01	LID	94	1890	0.25	1.15	30	0.3	0.34	0.35	2.8	0.3
LID	38A	64.1	0.01	LID	94	3261	0.14	1.15	30	0.3	0.34	0.35	6.7	0.8
LID	39A	41.6	0.01	LID	94	2268	0.21	1.15	30	0.3	0.34	0.35	4.4	0.5
LID	42E	61.9	0.01	LID	94	3825	0.15	1.15	30	0.3	0.34	0.35	6.5	0.8

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

LID	43E	50.1	0.01	LID	94	2265	0.18	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	44E	64.4	0.01	LID	94	3261	0.15	1.15	30	0.3	0.34	0.35	6.8	0.8
LID	46A	47.5	0.01	LID	94	2761	0.16	1.15	30	0.3	0.34	0.35	5.0	0.6
LID	47A	38.8	0.01	LID	94	4397	0.14	1.15	30	0.3	0.34	0.35	4.1	0.5
LID	48A	38.8	0.01	LID	94	4016	0.14	1.15	30	0.3	0.34	0.35	4.1	0.5
LID	49A	25.9	0.01	LID	94	1562	0.24	1.15	30	0.3	0.34	0.35	2.7	0.3
LID	50A	68.3	0.01	LID	94	3772	0.11	1.15	30	0.3	0.34	0.35	7.2	0.9
LID	53F	45.6	0.01	LID	94	2373	0.13	1.15	30	0.3	0.34	0.35	4.8	0.6
LID	54F	53.1	0.01	LID	94	3206	0.14	1.15	30	0.3	0.34	0.35	5.6	0.7
LID	56A	46	0.01	LID	94	3001	0.16	1.15	30	0.3	0.34	0.35	4.8	0.6
LID	57A	50.8	0.01	LID	94	3314	0.15	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	60B	53	0.01	LID	94	3978	0.1	1.15	30	0.3	0.34	0.35	5.6	0.7
LID	61B	38.3	0.01	LID	94	1840	0.16	1.15	30	0.3	0.34	0.35	4.0	0.5
LID	63A	47.7	0.01	LID	94	2864	0.18	1.15	30	0.3	0.34	0.35	5.0	0.6
LID	64A	50	0.01	LID	94	2172	0.24	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	65A	45.7	0.01	LID	94	1777	0.28	1.15	30	0.3	0.34	0.35	4.8	0.6
LID	66A	38.3	0.01	LID	94	1612	0.25	1.15	30	0.3	0.34	0.35	4.0	0.5
												Total =	221.4	26.5

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006     1    1A  94  140.912A29                                        G1
006     1    2A  94  150.610A292 1320 10000
006     1    3A  94  148.810A292  960 10000
006     1    4A  94  137.8 9A292 1272 08000
006     1    5A  94  146.911A29
006     1    6A  94       99A29
006     1    7A  94       99A29
006     1    8B  94  155.410A291 1656 12000
006     1    9B  94  151.011A29
006     1   10AB 94         A292 1663 08000
006     1   11A  94  146.312A29
006     1   12A  94  146.712A29
006     1   13A  94  155.011A292 1584 04000
006     1   14A  94  152.811A29
006     1   15A  94  152.612A292 1085 05000
006     1   16A  94  123.510A29
006     1   17A  94       99A29
006     1   18A  94       99A29
006     1   19C  94  126.0 7A292 1584 09000
006     1   20C  94  148.714A29
006     1   21AC 94         A292 1337 05000
006     1   22A  94  149.715A29
006     1   23A  94       99A29
006     1   24A  94       99A29
006     1   25D  94  145.011A29
006     1   26D  94  131.112A292 1020 10000
006     1   27D  94  149.312A292 1290 10000
006     1   28D  94  147.514A29
006     1   29D  94  129.211A292 1232 10000
006     1   30D  94  148.610A292 1423 08000
006     1   31D  94  141.113A29
006     1   32AD 94         A292  827 03000
006     1   33A  94       99A29
006     1   34A  94       99A29
006     1   35A  94  141.313A292  488 04000
006     1   36A  94  146.411A292 1164 03000
006     1   37A  94  126.810A29
006     1   38A  94  164.115A292 1779 04000
006     1   39A  94  141.611A29
006     1   40A  94       99A29
006     1   41A  94       99A29
006     1   42E  94  161.917A29
006     1   43E  94  150.112A292 1851 08000
006     1   44E  94  164.415A29
006     1   45AE 94         A292 1975 03000
006     1   46A  94  147.513A29
006     1   47A  94  138.818A29
006     1   48A  94  138.817A292  888 04000
006     1   49A  94  125.9 8A292 1226 03000
006     1   50A  94  168.317A29
006     1   51A  94       99A29
006     1   52A  94       99A29
006     1   53F  94  145.612A291 2348 11000
006     1   54F  94  153.115A29
006     1   55AF 94         A292 1223 02000
006     1   56A  94  146.014A292 1272 02000
006     1   57A  94  150.815A29
006     1   58A  94       99A29
006     1   59A  94       99A29
006     1   60B  94  153.018A291 1480 11000
006     1   61B  94  138.310A29
006     1   62AB 94         A292  589 03000
006     1   63A  94  147.713A292  826 02000
006     1   64A  94  150.011A292 1214 03000
006     1   65A  94  145.7 9A292 1165 02000
006     1   66A  94  138.3 9A29                                        2  2
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Program Package Serial Number: 2083

02/13/15 FILE: EX50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. 50-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	80.14	40.9	80.14	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	2A	50.6	109.62	91.5	189.77	2	1320.	.10000	.00	.00	0.	94	10	A29	.01
1	3A	48.8	105.72	140.3	289.36	2	960.	.10000	.00	.00	0.	94	10	A29	.01
1	4A	37.8	85.90	178.1	368.33	2	1272.	.08000	.00	.00	0.	94	9	A29	.01
1	5A	46.9	96.31	225.0	453.97	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	6A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	120.02	55.4	120.02	1	1656.	.12000	.00	.00	0.	94	10	A29	.01
1	9B	51.0	104.73	106.4	208.82	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	10AB	106.4	208.82	331.4	662.70	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	90.72	377.7	740.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	12A	46.7	91.51	424.4	823.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	13A	55.0	112.95	479.4	924.54	2	1584.	.04000	.00	.00	0.	94	11	A29	.01
1	14A	52.8	108.43	532.2	1001.20	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	15A	52.6	103.07	584.8	1093.26	2	1085.	.05000	.00	.00	0.	94	12	A29	.01
1	16A	23.5	50.91	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	17A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	66.75	26.0	66.75	2	1584.	.09000	.00	.00	0.	94	7	A29	.01
1	20C	48.7	88.22	74.7	149.78	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	21AC	74.7	149.78	683.0	1246.29	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	87.10	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	23A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	92.41	45.0	92.41	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	26D	31.1	60.94	76.1	153.35	2	1020.	.10000	.00	.00	0.	94	12	A29	.01
1	27D	49.3	96.60	125.4	248.57	2	1290.	.10000	.00	.00	0.	94	12	A29	.01
1	28D	47.5	86.05	172.9	331.19	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	29D	29.2	59.96	202.1	388.26	2	1232.	.10000	.00	.00	0.	94	11	A29	.01
1	30D	48.6	105.29	250.7	481.67	2	1423.	.08000	.00	.00	0.	94	10	A29	.01
1	31D	41.1	77.26	291.8	549.56	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	32AD	291.8	549.56	1024.5	1846.33	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	77.64	1065.8	1906.54	2	488.	.04000	.00	.00	0.	94	13	A29	.01
1	36A	46.4	95.28	1112.2	1961.87	2	1164.	.03000	.00	.00	0.	94	11	A29	.01
1	37A	26.8	58.06	1139.0	1973.88	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	38A	64.1	112.33	1203.1	2070.31	2	1779.	.04000	.00	.00	0.	94	15	A29	.01
1	39A	41.6	85.43	1244.7	2087.28	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	40A	.0	.00	1244.7	2087.28	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1244.7	2087.28	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	61.9	101.21	61.9	101.21	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	43E	50.1	98.17	112.0	199.38	2	1851.	.08000	.00	.00	0.	94	12	A29	.01
1	44E	64.4	112.86	176.4	306.21	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	45AE	176.4	306.21	1421.1	2354.56	2	1975.	.03000	.00	.00	0.	94	0	A29	.00
1	46A	47.5	89.29	1468.6	2371.32	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	47A	38.8	61.55	1507.4	2424.25	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	48A	38.8	63.44	1546.2	2477.39	2	888.	.04000	.00	.00	0.	94	17	A29	.01
1	49A	25.9	62.29	1572.1	2483.94	2	1226.	.03000	.00	.00	0.	94	8	A29	.01

							EX50								
1	50A	68.3	111.68	1640.4	2549.82	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	51A	.0	.00	1640.4	2549.82	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	52A	.0	.00	1640.4	2549.82	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	53F	45.6	89.35	45.6	89.35	1	2348.	.11000	.00	.00	0.	94	12	A29	.01
1	54F	53.1	93.05	98.7	165.31	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	55AF	98.7	165.31	1739.1	2669.70	2	1223.	.02000	.00	.00	0.	94	0	A29	.00
1	56A	46.0	83.33	1785.1	2683.90	2	1272.	.02000	.00	.00	0.	94	14	A29	.01
1	57A	50.8	89.02	1835.9	2696.32	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	58A	.0	.00	1835.9	2696.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	59A	.0	.00	1835.9	2696.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	60B	53.0	84.08	53.0	84.08	1	1480.	.11000	.00	.00	0.	94	18	A29	.01
1	61B	38.3	82.98	91.3	154.38	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	62AB	91.3	154.38	1927.2	2783.67	2	589.	.03000	.00	.00	0.	94	0	A29	.00
1	63A	47.7	89.67	1974.9	2797.24	2	826.	.02000	.00	.00	0.	94	13	A29	.01
1	64A	50.0	102.68	2024.9	2807.27	2	1214.	.03000	.00	.00	0.	94	11	A29	.01
1	65A	45.7	103.85	2070.6	2813.80	2	1165.	.02000	.00	.00	0.	94	9	A29	.01
1	66A	38.3	87.04	2108.9	2817.32	0	0.	.00000	.00	.00	0.	94	9	A29	.01

♀

Program Package Serial Number: 2083

02/13/15 FILE: EX50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake, Exist. 50-yr CLEAR, OUTLET HYD.

HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	29.79	200	30.40	300	31.85	400	33.55
500	35.50	600	38.04	700	41.24	800	55.77	900	106.22
1000	197.43	1050	283.93	1100	444.89	1110	498.62	1120	575.35
1130	691.95	1131	705.39	1132	718.83	1133	733.43	1134	748.62
1135	764.52	1136	781.02	1137	798.60	1138	816.99	1139	836.36
1140	856.35	1141	877.92	1142	900.40	1143	924.26	1144	949.39
1145	977.07	1146	1006.34	1147	1037.71	1148	1070.89	1149	1114.70
1150	1164.25	1151	1222.46	1152	1290.00	1153	1368.23	1154	1447.62
1155	1531.11	1156	1615.94	1157	1702.64	1158	1781.89	1159	1858.92
1160	1934.73	1161	2011.21	1162	2086.72	1163	2169.31	1164	2255.37
1165	2345.68	1166	2437.44	1167	2529.91	1168	2620.23	1169	2701.37
1170	2765.78	1171	2806.33	1172	2817.32	1173	2798.15	1174	2749.43
1175	2675.59	1176	2581.79	1177	2473.38	1178	2355.81	1179	2233.79
1180	2110.69	1181	1989.78	1182	1872.01	1183	1759.60	1184	1652.62
1185	1551.86	1186	1457.53	1187	1370.00	1188	1288.52	1189	1213.73
1190	1144.73	1191	1081.36	1192	1023.11	1193	969.78	1194	920.59
1195	875.31	1196	833.78	1197	795.62	1198	760.41	1199	728.04
1200	698.31	1201	670.63	1202	643.76	1203	618.24	1204	594.67
1205	572.90	1206	553.61	1207	534.72	1208	517.02	1209	500.55
1210	485.40	1211	471.28	1212	457.97	1213	445.73	1214	434.67
1215	423.83	1216	413.48	1217	402.95	1218	392.71	1219	383.08
1220	373.31	1221	364.12	1222	354.98	1223	346.31	1224	337.92
1225	329.61	1226	322.04	1227	314.49	1228	307.09	1229	300.27
1230	293.58	1231	287.71	1232	282.45	1233	277.86	1234	273.18
1235	268.19	1236	263.40	1237	258.56	1238	253.53	1239	249.08
1240	244.43	1241	239.88	1242	235.15	1243	230.68	1244	226.22
1245	221.59	1246	217.30	1247	213.07	1248	208.94	1249	204.97
1250	200.95	1251	197.70	1252	194.40	1253	191.56	1254	188.67
1255	185.71	1256	182.77	1257	179.84	1258	176.65	1259	173.69
1260	170.69	1261	167.70	1262	164.50	1263	161.82	1264	158.61
1265	155.70	1266	152.80	1267	149.89	1268	147.03	1269	144.22
1270	141.45	1271	138.73	1272	136.02	1273	133.41	1274	130.80
1275	128.22	1276	125.70	1277	123.22	1278	120.75	1279	118.37
1280	116.01	1281	113.73	1282	111.51	1283	109.47	1284	107.61
1285	105.93	1286	104.56	1287	103.14	1288	101.66	1289	100.19
1290	98.70	1291	97.19	1292	95.69	1293	94.18	1294	92.68
1295	91.17	1296	89.68	1297	88.19	1298	86.72	1299	85.25
1300	83.81	1310	70.88	1320	60.91	1330	53.97	1340	49.03
1350	45.05	1360	42.19	1370	40.19	1380	38.68	1390	37.42
1400	36.43	1420	34.73	1440	33.26	1460	29.98	1500	29.25

TOTAL VOLUME THIS HYDROGRAPH = 326.40(Ac.Ft)

```
006    1     1A  94  140.913A26                                        G1
006    1     2A  94  150.611A262 1320 10000
006    1     3A  94  148.811A262  960 10000
006    1     4A  94  137.810A262 1272 08000
006    1     5A  94  146.912A26
006    1     6A  94       99A26
006    1     7A  94       99A26
006    1     8B  94  155.411A261 1656 12000
006    1     9B  94  151.012A26
006    1    10AB 94         A262 1663 08000
006    1    11A  94  146.313A26
006    1    12A  94  146.713A26
006    1    13A  94  155.012A262 1584 04000
006    1    14A  94  152.812A26
006    1    15A  94  152.613A262 1085 05000
006    1    16A  94  123.511A26
006    1    17A  94       99A26
006    1    18A  94       99A26
006    1    19C  94  126.0 8A262 1584 09000
006    1    20C  94  148.715A26
006    1    21AC 94         A262 1337 05000
006    1    22A  94  149.717A26
006    1    23A  94       99A26
006    1    24A  94       99A26
006    1    25D  94  145.012A26
006    1    26D  94  131.113A262 1020 10000
006    1    27D  94  149.313A262 1290 10000
006    1    28D  94  147.515A26
006    1    29D  94  129.212A262 1232 10000
006    1    30D  94  148.611A262 1423 08000
006    1    31D  94  141.114A26
006    1    32AD 94         A262  827 03000
006    1    33A  94       99A26
006    1    34A  94       99A26
006    1    35A  94  141.314A262  488 04000
006    1    36A  94  146.412A262 1164 03000
006    1    37A  94  126.811A26
006    1    38A  94  164.117A262 1779 04000
006    1    39A  94  141.612A26
006    1    40A  94       99A26
006    1    41A  94       99A26
006    1    42E  94  161.918A26
006    1    43E  94  150.112A262 1851 08000
006    1    44E  94  164.416A26
006    1    45AE 94         A262 1975 03000
006    1    46A  94  147.515A26
006    1    47A  94  138.821A26
006    1    48A  94  138.819A262  888 04000
006    1    49A  94  125.910A262 1226 03000
006    1    50A  94  168.319A26
006    1    51A  94       99A26
006    1    52A  94       99A26
006    1    53F  94  145.614A261 2348 11000
006    1    54F  94  153.117A26
006    1    55AF 94         A262 1223 02000
006    1    56A  94  146.015A262 1272 02000
006    1    57A  94  150.817A26
006    1    58A  94       99A26
006    1    59A  94       99A26
006    1    60B  94  153.020A261 1480 11000
006    1    61B  94  138.311A26
006    1    62AB 94         A262  589 03000
006    1    63A  94  147.715A262  826 02000
006    1    64A  94  150.012A262 1214 03000
006    1    65A  94  145.710A262 1165 02000
006    1    66A  94  138.310A26                                        2  2
```

Program Package Serial Number: 2083
02/23/15 FILE: EX25 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. 25-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	68.03	40.9	68.03	0	0.	.00000	.00	.00	0.	94	13	A26	.01
1	2A	50.6	92.27	91.5	160.30	2	1320.	.10000	.00	.00	0.	94	11	A26	.01
1	3A	48.8	88.99	140.3	245.64	2	960.	.10000	.00	.00	0.	94	11	A26	.01
1	4A	37.8	72.76	178.1	312.17	2	1272.	.08000	.00	.00	0.	94	10	A26	.01
1	5A	46.9	81.56	225.0	385.96	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	6A	.0	.00	225.0	385.96	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	7A	.0	.00	225.0	385.96	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	8B	55.4	101.02	55.4	101.02	1	1656.	.12000	.00	.00	0.	94	11	A26	.01
1	9B	51.0	88.69	106.4	177.30	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	10AB	106.4	177.30	331.4	563.27	2	1663.	.08000	.00	.00	0.	94	0	A26	.00
1	11A	46.3	77.01	377.7	627.74	0	0.	.00000	.00	.00	0.	94	13	A26	.01
1	12A	46.7	77.67	424.4	699.46	0	0.	.00000	.00	.00	0.	94	13	A26	.01
1	13A	55.0	95.65	479.4	785.92	2	1584.	.04000	.00	.00	0.	94	12	A26	.01
1	14A	52.8	91.82	532.2	854.53	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	15A	52.6	87.49	584.8	932.54	2	1085.	.05000	.00	.00	0.	94	13	A26	.01
1	16A	23.5	42.85	608.3	954.06	0	0.	.00000	.00	.00	0.	94	11	A26	.01
1	17A	.0	.00	608.3	954.06	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	18A	.0	.00	608.3	954.06	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	19C	26.0	55.43	26.0	55.43	2	1584.	.09000	.00	.00	0.	94	8	A26	.01
1	20C	48.7	75.49	74.7	126.63	0	0.	.00000	.00	.00	0.	94	15	A26	.01
1	21AC	74.7	126.63	683.0	1060.56	2	1337.	.05000	.00	.00	0.	94	0	A26	.00
1	22A	49.7	71.91	732.7	1121.14	0	0.	.00000	.00	.00	0.	94	17	A26	.01
1	23A	.0	.00	732.7	1121.14	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	24A	.0	.00	732.7	1121.14	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	25D	45.0	78.26	45.0	78.26	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	26D	31.1	51.73	76.1	129.98	2	1020.	.10000	.00	.00	0.	94	13	A26	.01
1	27D	49.3	82.00	125.4	210.92	2	1290.	.10000	.00	.00	0.	94	13	A26	.01
1	28D	47.5	73.63	172.9	281.00	0	0.	.00000	.00	.00	0.	94	15	A26	.01
1	29D	29.2	50.78	202.1	329.96	2	1232.	.10000	.00	.00	0.	94	12	A26	.01
1	30D	48.6	88.62	250.7	409.56	2	1423.	.08000	.00	.00	0.	94	11	A26	.01
1	31D	41.1	65.87	291.8	467.89	0	0.	.00000	.00	.00	0.	94	14	A26	.01
1	32AD	291.8	467.89	1024.5	1573.70	2	827.	.03000	.00	.00	0.	94	0	A26	.00
1	33A	.0	.00	1024.5	1567.57	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	34A	.0	.00	1024.5	1567.57	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	35A	41.3	66.19	1065.8	1623.14	2	488.	.04000	.00	.00	0.	94	14	A26	.01
1	36A	46.4	80.69	1112.2	1671.79	2	1164.	.03000	.00	.00	0.	94	12	A26	.01
1	37A	26.8	48.87	1139.0	1683.49	0	0.	.00000	.00	.00	0.	94	11	A26	.01
1	38A	64.1	92.74	1203.1	1763.95	2	1779.	.04000	.00	.00	0.	94	17	A26	.01
1	39A	41.6	72.34	1244.7	1781.03	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	40A	.0	.00	1244.7	1781.03	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	41A	.0	.00	1244.7	1781.03	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	42E	61.9	86.80	61.9	86.80	0	0.	.00000	.00	.00	0.	94	18	A26	.01
1	43E	50.1	87.12	112.0	173.92	2	1851.	.08000	.00	.00	0.	94	12	A26	.01
1	44E	64.4	96.18	176.4	264.85	0	0.	.00000	.00	.00	0.	94	16	A26	.01
1	45AE	176.4	264.85	1421.1	2002.21	2	1975.	.03000	.00	.00	0.	94	0	A26	.00
1	46A	47.5	73.63	1468.6	2027.67	0	0.	.00000	.00	.00	0.	94	15	A26	.01
1	47A	38.8	50.09	1507.4	2072.20	0	0.	.00000	.00	.00	0.	94	21	A26	.01
1	48A	38.8	52.86	1546.2	2116.92	2	888.	.04000	.00	.00	0.	94	19	A26	.01
1	49A	25.9	49.86	1572.1	2121.64	2	1226.	.03000	.00	.00	0.	94	10	A26	.01
1	50A	68.3	93.04	1640.4	2184.22	0	0.	.00000	.00	.00	0.	94	19	A26	.01
1	51A	.0	.00	1640.4	2184.22	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	52A	.0	.00	1640.4	2184.22	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	53F	45.6	73.08	45.6	73.08	1	2348.	.11000	.00	.00	0.	94	14	A26	.01

EX25

1	54F	53.1	76.83	98.7	137.06	0	0.	.00000	.00	.00	0.	94	17	A26	.01
1	55AF	98.7	137.06	1739.1	2292.56	2	1223.	.02000	.00	.00	0.	94	0	A26	.00
1	56A	46.0	71.31	1785.1	2301.49	2	1272.	.02000	.00	.00	0.	94	15	A26	.01
1	57A	50.8	73.50	1835.9	2314.91	0	0.	.00000	.00	.00	0.	94	17	A26	.01
1	58A	.0	.00	1835.9	2314.91	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	59A	.0	.00	1835.9	2314.91	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	60B	53.0	70.29	53.0	70.29	1	1480.	.11000	.00	.00	0.	94	20	A26	.01
1	61B	38.3	69.84	91.3	129.46	0	0.	.00000	.00	.00	0.	94	11	A26	.01
1	62AB	91.3	129.46	1927.2	2388.45	2	589.	.03000	.00	.00	0.	94	0	A26	.00
1	63A	47.7	73.94	1974.9	2400.73	2	826.	.02000	.00	.00	0.	94	15	A26	.01
1	64A	50.0	86.95	2024.9	2409.78	2	1214.	.03000	.00	.00	0.	94	12	A26	.01
1	65A	45.7	87.97	2070.6	2415.10	2	1165.	.02000	.00	.00	0.	94	10	A26	.01
1	66A	38.3	73.73	2108.9	2415.40	0	0.	.00000	.00	.00	0.	94	10	A26	.01

♀

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake, Exist. 25-yr CLEAR, OUTLET HYD.

HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	26.65	200	27.24	300	28.56	400	30.05
500	31.80	600	34.05	700	36.90	800	40.65	900	61.78
1000	137.20	1050	219.78	1100	361.92	1110	407.63	1120	471.26
1130	568.27	1131	579.35	1132	590.56	1133	602.42	1134	615.04
1135	628.11	1136	641.92	1137	656.45	1138	671.66	1139	687.82
1140	704.60	1141	722.70	1142	741.54	1143	761.23	1144	781.87
1145	804.81	1146	829.13	1147	855.13	1148	882.78	1149	918.39
1150	959.09	1151	1005.99	1152	1059.94	1153	1121.87	1154	1185.47
1155	1251.92	1156	1319.30	1157	1387.42	1158	1456.68	1159	1519.95
1160	1581.88	1161	1643.09	1162	1705.17	1163	1767.43	1164	1835.93
1165	1908.74	1166	1986.39	1167	2066.41	1168	2147.27	1169	2226.43
1170	2298.28	1171	2356.89	1172	2397.16	1173	2415.40	1174	2409.64
1175	2380.50	1176	2330.06	1177	2261.38	1178	2178.69	1179	2086.40
1180	1987.94	1181	1886.67	1182	1785.04	1183	1684.72	1184	1587.68
1185	1494.54	1186	1405.77	1187	1322.15	1188	1243.82	1189	1171.06
1190	1103.45	1191	1040.53	1192	982.47	1193	928.98	1194	879.53
1195	834.22	1196	792.16	1197	753.52	1198	717.64	1199	684.45
1200	653.68	1201	625.59	1202	599.39	1203	575.13	1204	552.51
1205	530.34	1206	509.44	1207	489.76	1208	471.98	1209	455.62
1210	440.14	1211	425.15	1212	411.28	1213	398.57	1214	386.52
1215	375.30	1216	364.84	1217	355.24	1218	346.08	1219	337.11
1220	328.20	1221	319.50	1222	310.80	1223	302.51	1224	294.38
1225	286.25	1226	278.60	1227	271.40	1228	264.01	1229	257.13
1230	250.21	1231	243.72	1232	237.49	1233	231.64	1234	226.05
1235	221.41	1236	216.94	1237	213.02	1238	208.99	1239	204.67
1240	200.79	1241	196.43	1242	192.33	1243	188.22	1244	184.10
1245	179.88	1246	176.02	1247	171.86	1248	167.94	1249	164.08
1250	160.25	1251	156.55	1252	152.91	1253	149.34	1254	145.93
1255	142.71	1256	139.73	1257	137.05	1258	134.88	1259	132.68
1260	130.44	1261	128.16	1262	125.88	1263	123.59	1264	121.29
1265	118.99	1266	116.71	1267	114.42	1268	112.15	1269	109.90
1270	107.66	1271	105.45	1272	103.27	1273	101.11	1274	98.99
1275	96.91	1276	94.84	1277	92.84	1278	90.87	1279	88.94
1280	87.06	1281	85.20	1282	83.40	1283	81.64	1284	79.92
1285	78.25	1286	76.63	1287	75.05	1288	73.51	1289	72.01
1290	70.57	1291	69.21	1292	67.88	1293	66.61	1294	65.45
1295	64.38	1296	63.41	1297	62.54	1298	61.77	1299	61.11
1300	60.43	1310	53.68	1320	47.90	1330	43.63	1340	40.68
1350	38.68	1360	37.05	1370	35.78	1380	34.69	1390	33.70
1400	32.82	1420	31.26	1440	29.94	1460	26.98	1500	26.16

TOTAL VOLUME THIS HYDROGRAPH = 270.58(Ac.Ft)

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006    1    1A  94  140.916A20                                        G1
006    1    2A  94  150.613A202 1320 10000
006    1    3A  94  148.813A202  960 10000
006    1    4A  94  137.812A202 1272 08000
006    1    5A  94  146.914A20
006    1    6A  94       99A20
006    1    7A  94       99A20
006    1    8B  94  155.412A201 1656 12000
006    1    9B  94  151.014A20
006    1   10AB 94         A202 1663 08000
006    1   11A  94  146.315A20
006    1   12A  94  146.715A20
006    1   13A  94  155.014A202 1584 04000
006    1   14A  94  152.814A20
006    1   15A  94  152.616A202 1085 05000
006    1   16A  94  123.512A20
006    1   17A  94       99A20
006    1   18A  94       99A20
006    1   19C  94  126.010A202 1584 09000
006    1   20C  94  148.718A20
006    1   21AC 94         A202 1337 05000
006    1   22A  94  149.721A20
006    1   23A  94       99A20
006    1   24A  94       99A20
006    1   25D  94  145.015A20
006    1   26D  94  131.115A202 1020 10000
006    1   27D  94  149.316A202 1290 10000
006    1   28D  94  147.518A20
006    1   29D  94  129.214A202 1232 10000
006    1   30D  94  148.612A202 1423 08000
006    1   31D  94  141.117A20
006    1   32AD 94         A202  827 03000
006    1   33A  94       99A20
006    1   34A  94       99A20
006    1   35A  94  141.317A202  488 04000
006    1   36A  94  146.415A202 1164 03000
006    1   37A  94  126.812A20
006    1   38A  94  164.120A202 1779 04000
006    1   39A  94  141.615A20
006    1   40A  94       99A20
006    1   41A  94       99A20
006    1   42E  94  161.922A20
006    1   43E  94  150.115A202 1851 08000
006    1   44E  94  164.420A20
006    1   45AE 94         A202 1975 03000
006    1   46A  94  147.518A20
006    1   47A  94  138.825A20
006    1   48A  94  138.823A202  888 04000
006    1   49A  94  125.911A202 1226 03000
006    1   50A  94  168.324A20
006    1   51A  94       99A20
006    1   52A  94       99A20
006    1   53F  94  145.616A201 2348 11000
006    1   54F  94  153.120A20
006    1   55AF 94         A202 1223 02000
006    1   56A  94  146.019A202 1272 02000
006    1   57A  94  150.820A20
006    1   58A  94       99A20
006    1   59A  94       99A20
006    1   60B  94  153.025A201 1480 11000
006    1   61B  94  138.313A20
006    1   62AB 94         A202  589 03000
006    1   63A  94  147.718A202  826 02000
006    1   64A  94  150.014A202 1214 03000
006    1   65A  94  145.712A202 1165 02000
006    1   66A  94  138.311A20                                      2  2
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Program Package Serial Number: 2083

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. 10-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	45.07	40.9	45.07	0	0.	.00000	.00	.00	0.	94	16	A20	.01
1	2A	50.6	62.14	91.5	107.21	2	1320.	.10000	.00	.00	0.	94	13	A20	.01
1	3A	48.8	59.93	140.3	165.26	2	960.	.10000	.00	.00	0.	94	13	A20	.01
1	4A	37.8	48.44	178.1	210.20	2	1272.	.08000	.00	.00	0.	94	12	A20	.01
1	5A	46.9	55.46	225.0	260.90	0	0.	.00000	.00	.00	0.	94	14	A20	.01
1	6A	.0	.00	225.0	260.90	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	7A	.0	.00	225.0	260.90	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	8B	55.4	71.00	55.4	71.00	1	1656.	.12000	.00	.00	0.	94	12	A20	.01
1	9B	51.0	60.31	106.4	123.00	0	0.	.00000	.00	.00	0.	94	14	A20	.01
1	10AB	106.4	123.00	331.4	383.90	2	1663.	.08000	.00	.00	0.	94	0	A20	.00
1	11A	46.3	52.94	377.7	428.44	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	12A	46.7	53.40	424.4	477.62	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	13A	55.0	65.04	479.4	536.46	2	1584.	.04000	.00	.00	0.	94	14	A20	.01
1	14A	52.8	62.44	532.2	583.40	0	0.	.00000	.00	.00	0.	94	14	A20	.01
1	15A	52.6	57.96	584.8	634.13	2	1085.	.05000	.00	.00	0.	94	16	A20	.01
1	16A	23.5	30.12	608.3	648.00	0	0.	.00000	.00	.00	0.	94	12	A20	.01
1	17A	.0	.00	608.3	648.00	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	18A	.0	.00	608.3	648.00	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	19C	26.0	37.08	26.0	37.08	2	1584.	.09000	.00	.00	0.	94	10	A20	.01
1	20C	48.7	50.16	74.7	84.66	0	0.	.00000	.00	.00	0.	94	18	A20	.01
1	21AC	74.7	84.66	683.0	723.72	2	1337.	.05000	.00	.00	0.	94	0	A20	.00
1	22A	49.7	47.02	732.7	762.47	0	0.	.00000	.00	.00	0.	94	21	A20	.01
1	23A	.0	.00	732.7	762.47	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	24A	.0	.00	732.7	762.47	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	25D	45.0	51.45	45.0	51.45	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	26D	31.1	35.56	76.1	87.01	2	1020.	.10000	.00	.00	0.	94	15	A20	.01
1	27D	49.3	54.33	125.4	140.37	2	1290.	.10000	.00	.00	0.	94	16	A20	.01
1	28D	47.5	48.92	172.9	187.79	0	0.	.00000	.00	.00	0.	94	18	A20	.01
1	29D	29.2	34.53	202.1	221.26	2	1232.	.10000	.00	.00	0.	94	14	A20	.01
1	30D	48.6	62.28	250.7	276.35	2	1423.	.08000	.00	.00	0.	94	12	A20	.01
1	31D	41.1	43.79	291.8	315.55	0	0.	.00000	.00	.00	0.	94	17	A20	.01
1	32AD	291.8	315.55	1024.5	1063.22	2	827.	.03000	.00	.00	0.	94	0	A20	.00
1	33A	.0	.00	1024.5	1059.35	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	34A	.0	.00	1024.5	1059.35	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	35A	41.3	44.00	1065.8	1097.33	2	488.	.04000	.00	.00	0.	94	17	A20	.01
1	36A	46.4	53.05	1112.2	1134.99	2	1164.	.03000	.00	.00	0.	94	15	A20	.01
1	37A	26.8	34.35	1139.0	1139.96	0	0.	.00000	.00	.00	0.	94	12	A20	.01
1	38A	64.1	62.50	1203.1	1193.77	2	1779.	.04000	.00	.00	0.	94	20	A20	.01
1	39A	41.6	47.56	1244.7	1210.25	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	40A	.0	.00	1244.7	1210.25	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	41A	.0	.00	1244.7	1210.25	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	42E	61.9	57.10	61.9	57.10	0	0.	.00000	.00	.00	0.	94	22	A20	.01
1	43E	50.1	57.28	112.0	114.06	2	1851.	.08000	.00	.00	0.	94	15	A20	.01
1	44E	64.4	62.79	176.4	173.93	0	0.	.00000	.00	.00	0.	94	20	A20	.01
1	45AE	176.4	173.93	1421.1	1360.37	2	1975.	.03000	.00	.00	0.	94	0	A20	.00
1	46A	47.5	48.92	1468.6	1378.29	0	0.	.00000	.00	.00	0.	94	18	A20	.01
1	47A	38.8	33.21	1507.4	1407.12	0	0.	.00000	.00	.00	0.	94	25	A20	.01
1	48A	38.8	34.86	1546.2	1436.16	2	888.	.04000	.00	.00	0.	94	23	A20	.01
1	49A	25.9	34.96	1572.1	1438.59	2	1226.	.03000	.00	.00	0.	94	11	A20	.01
1	50A	68.3	59.85	1640.4	1481.83	0	0.	.00000	.00	.00	0.	94	24	A20	.01
1	51A	.0	.00	1640.4	1481.83	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	52A	.0	.00	1640.4	1481.83	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	53F	45.6	50.25	45.6	50.25	1	2348.	.11000	.00	.00	0.	94	16	A20	.01

1	54F	53.1	51.77	98.7	92.62	0	0.	.00000	.00	.00	0.	94	20	A20	.01
1	55AF	98.7	92.62	1739.1	1555.11	2	1223.	.02000	.00	.00	0.	94	0	A20	.00
1	56A	46.0	46.05	1785.1	1566.02	2	1272.	.02000	.00	.00	0.	94	19	A20	.01
1	57A	50.8	49.53	1835.9	1574.84	0	0.	.00000	.00	.00	0.	94	20	A20	.01
1	58A	.0	.00	1835.9	1574.84	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	59A	.0	.00	1835.9	1574.84	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	60B	53.0	45.36	53.0	45.36	1	1480.	.11000	.00	.00	0.	94	25	A20	.01
1	61B	38.3	47.03	91.3	85.18	0	0.	.00000	.00	.00	0.	94	13	A20	.01
1	62AB	91.3	85.18	1927.2	1622.31	2	589.	.03000	.00	.00	0.	94	0	A20	.00
1	63A	47.7	49.13	1974.9	1629.89	2	826.	.02000	.00	.00	0.	94	18	A20	.01
1	64A	50.0	59.13	2024.9	1634.94	2	1214.	.03000	.00	.00	0.	94	14	A20	.01
1	65A	45.7	58.57	2070.6	1636.42	2	1165.	.02000	.00	.00	0.	94	12	A20	.01
1	66A	38.3	51.70	2108.9	1636.44	0	0.	.00000	.00	.00	0.	94	11	A20	.01

Program Package Serial Number: 2083

02/23/15 FILE: EX10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake, Exist. 10-yr CLEAR, OUTLET HYD.

HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	20.50	200	20.95	300	21.92	400	23.00
500	24.38	600	26.15	700	28.30	800	31.15	900	35.15
1000	43.04	1050	81.65	1100	191.64	1110	226.10	1120	270.29
1130	333.96	1131	341.29	1132	348.58	1133	356.25	1134	364.29
1135	372.80	1136	381.48	1137	390.93	1138	400.80	1139	410.96
1140	421.77	1141	433.44	1142	445.71	1143	458.55	1144	471.97
1145	486.98	1146	502.68	1147	519.53	1148	537.24	1149	560.33
1150	585.95	1151	615.21	1152	648.02	1153	685.37	1154	722.79
1155	762.96	1156	803.20	1157	844.07	1158	885.13	1159	925.57
1160	962.17	1161	999.80	1162	1036.92	1163	1073.24	1164	1110.17
1165	1151.78	1166	1193.66	1167	1237.70	1168	1284.86	1169	1334.10
1170	1385.47	1171	1438.63	1172	1491.66	1173	1540.55	1174	1582.15
1175	1613.27	1176	1631.43	1177	1636.44	1178	1628.06	1179	1607.04
1180	1575.05	1181	1533.43	1182	1483.83	1183	1427.87	1184	1367.98
1185	1305.29	1186	1241.55	1187	1178.30	1188	1116.19	1189	1055.85
1190	997.92	1191	942.44	1192	889.97	1193	840.40	1194	793.55
1195	749.54	1196	708.52	1197	669.94	1198	634.13	1199	600.63
1200	569.64	1201	540.73	1202	513.59	1203	488.51	1204	464.96
1205	443.16	1206	422.54	1207	403.48	1208	385.72	1209	369.03
1210	353.47	1211	338.87	1212	325.14	1213	311.70	1214	298.72
1215	286.45	1216	274.99	1217	264.47	1218	254.63	1219	245.13
1220	236.11	1221	227.65	1222	219.97	1223	212.73	1224	205.85
1225	199.47	1226	193.51	1227	188.28	1228	183.13	1229	177.90
1230	172.62	1231	167.38	1232	162.19	1233	157.05	1234	152.04
1235	147.13	1236	142.32	1237	137.70	1238	133.18	1239	128.79
1240	124.58	1241	120.51	1242	116.59	1243	112.80	1244	109.21
1245	105.75	1246	102.48	1247	99.40	1248	96.52	1249	93.82
1250	91.42	1251	89.21	1252	87.29	1253	85.55	1254	83.98
1255	82.49	1256	81.26	1257	79.92	1258	78.52	1259	77.05
1260	75.59	1261	74.06	1262	72.55	1263	71.05	1264	69.54
1265	68.06	1266	66.60	1267	65.16	1268	63.73	1269	62.36
1270	61.05	1271	59.72	1272	58.46	1273	57.24	1274	56.04
1275	54.92	1276	53.82	1277	52.74	1278	51.72	1279	50.75
1280	49.84	1281	48.92	1282	48.06	1283	47.25	1284	46.49
1285	45.76	1286	45.06	1287	44.44	1288	43.89	1289	43.38
1290	42.91	1291	42.49	1292	42.10	1293	41.72	1294	41.33
1295	40.95	1296	40.57	1297	40.21	1298	39.85	1299	39.48
1300	39.13	1310	36.24	1320	34.14	1330	32.51	1340	31.12
1350	29.97	1360	28.90	1370	27.97	1380	27.15	1390	26.37
1400	25.67	1420	24.43	1440	23.37	1460	21.04	1500	20.13

TOTAL VOLUME THIS HYDROGRAPH = 175.23(Ac.Ft)

```
006    1    1A  94  140.919A17                                        G1
006    1    2A  94  150.616A172 1320 10000
006    1    3A  94  148.816A172  960 10000
006    1    4A  94  137.814A172 1272 08000
006    1    5A  94  146.917A17
006    1    6A  94       99A17
006    1    7A  94       99A17
006    1    8B  94  155.415A171 1656 12000
006    1    9B  94  151.017A17
006    1   10AB 94         A172 1663 08000
006    1   11A  94  146.318A17
006    1   12A  94  146.718A17
006    1   13A  94  155.017A172 1584 04000
006    1   14A  94  152.817A17
006    1   15A  94  152.619A172 1085 05000
006    1   16A  94  123.515A17
006    1   17A  94       99A17
006    1   18A  94       99A17
006    1   19C  94  126.011A172 1584 09000
006    1   20C  94  148.722A17
006    1   21AC 94         A172 1337 05000
006    1   22A  94  149.724A17
006    1   23A  94       99A17
006    1   24A  94       99A17
006    1   25D  94  145.017A17
006    1   26D  94  131.118A172 1020 10000
006    1   27D  94  149.318A172 1290 10000
006    1   28D  94  147.522A17
006    1   29D  94  129.217A172 1232 10000
006    1   30D  94  148.615A172 1423 08000
006    1   31D  94  141.120A17
006    1   32AD 94         A172  827 03000
006    1   33A  94       99A17
006    1   34A  94       99A17
006    1   35A  94  141.320A172  488 04000
006    1   36A  94  146.417A172 1164 03000
006    1   37A  94  126.815A17
006    1   38A  94  164.124A172 1779 04000
006    1   39A  94  141.617A17
006    1   40A  94       99A17
006    1   41A  94       99A17
006    1   42E  94  161.926A17
006    1   43E  94  150.118A172 1851 08000
006    1   44E  94  164.424A17
006    1   45AE 94         A172 1975 03000
006    1   46A  94  147.521A17
006    1   47A  94  138.829A17
006    1   48A  94  138.828A172  888 04000
006    1   49A  94  125.913A172 1226 03000
006    1   50A  94  168.328A17
006    1   51A  94       99A17
006    1   52A  94       99A17
006    1   53F  94  145.620A171 2348 11000
006    1   54F  94  153.124A17
006    1   55AF 94         A172 1223 02000
006    1   56A  94  146.022A172 1272 02000
006    1   57A  94  150.824A17
006    1   58A  94       99A17
006    1   59A  94       99A17
006    1   60B  94  153.029A171 1480 11000
006    1   61B  94  138.316A17
006    1   62AB 94         A172  589 03000
006    1   63A  94  147.721A172  826 02000
006    1   64A  94  150.016A172 1214 03000
006    1   65A  94  145.714A172 1165 02000
006    1   66A  94  138.313A17                                      2  2
```

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. 5-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	33.65	40.9	33.65	0	0.	.00000	.00	.00	0.	94	19	A17	.01
1	2A	50.6	45.94	91.5	79.60	2	1320.	.10000	.00	.00	0.	94	16	A17	.01
1	3A	48.8	44.31	140.3	122.19	2	960.	.10000	.00	.00	0.	94	16	A17	.01
1	4A	37.8	36.93	178.1	157.00	2	1272.	.08000	.00	.00	0.	94	14	A17	.01
1	5A	46.9	41.10	225.0	194.79	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	6A	.0	.00	225.0	194.79	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	7A	.0	.00	225.0	194.79	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	8B	55.4	52.30	55.4	52.30	1	1656.	.12000	.00	.00	0.	94	15	A17	.01
1	9B	51.0	44.69	106.4	90.98	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	10AB	106.4	90.98	331.4	285.78	2	1663.	.08000	.00	.00	0.	94	0	A17	.00
1	11A	46.3	39.26	377.7	319.94	0	0.	.00000	.00	.00	0.	94	18	A17	.01
1	12A	46.7	39.60	424.4	356.17	0	0.	.00000	.00	.00	0.	94	18	A17	.01
1	13A	55.0	48.19	479.4	400.62	2	1584.	.04000	.00	.00	0.	94	17	A17	.01
1	14A	52.8	46.27	532.2	435.80	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	15A	52.6	43.28	584.8	474.71	2	1085.	.05000	.00	.00	0.	94	19	A17	.01
1	16A	23.5	22.18	608.3	488.17	0	0.	.00000	.00	.00	0.	94	15	A17	.01
1	17A	.0	.00	608.3	488.17	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	18A	.0	.00	608.3	488.17	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	19C	26.0	29.05	26.0	29.05	2	1584.	.09000	.00	.00	0.	94	11	A17	.01
1	20C	48.7	36.68	74.7	63.96	0	0.	.00000	.00	.00	0.	94	22	A17	.01
1	21AC	74.7	63.96	683.0	543.67	2	1337.	.05000	.00	.00	0.	94	0	A17	.00
1	22A	49.7	35.62	732.7	573.97	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	23A	.0	.00	732.7	573.97	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	24A	.0	.00	732.7	573.97	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	25D	45.0	39.43	45.0	39.43	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	26D	31.1	26.37	76.1	65.81	2	1020.	.10000	.00	.00	0.	94	18	A17	.01
1	27D	49.3	41.81	125.4	106.90	2	1290.	.10000	.00	.00	0.	94	18	A17	.01
1	28D	47.5	35.77	172.9	141.74	0	0.	.00000	.00	.00	0.	94	22	A17	.01
1	29D	29.2	25.59	202.1	166.45	2	1232.	.10000	.00	.00	0.	94	17	A17	.01
1	30D	48.6	45.88	250.7	207.97	2	1423.	.08000	.00	.00	0.	94	15	A17	.01
1	31D	41.1	32.77	291.8	237.72	0	0.	.00000	.00	.00	0.	94	20	A17	.01
1	32AD	291.8	237.72	1024.5	802.96	2	827.	.03000	.00	.00	0.	94	0	A17	.00
1	33A	.0	.00	1024.5	800.19	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	34A	.0	.00	1024.5	800.19	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	35A	41.3	32.93	1065.8	828.49	2	488.	.04000	.00	.00	0.	94	20	A17	.01
1	36A	46.4	40.66	1112.2	857.51	2	1164.	.03000	.00	.00	0.	94	17	A17	.01
1	37A	26.8	25.30	1139.0	863.13	0	0.	.00000	.00	.00	0.	94	15	A17	.01
1	38A	64.1	45.95	1203.1	903.91	2	1779.	.04000	.00	.00	0.	94	24	A17	.01
1	39A	41.6	36.45	1244.7	915.99	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	40A	.0	.00	1244.7	915.99	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	41A	.0	.00	1244.7	915.99	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	42E	61.9	42.21	61.9	42.21	0	0.	.00000	.00	.00	0.	94	26	A17	.01
1	43E	50.1	42.49	112.0	84.41	2	1851.	.08000	.00	.00	0.	94	18	A17	.01
1	44E	64.4	46.16	176.4	128.96	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	45AE	176.4	128.96	1421.1	1029.75	2	1975.	.03000	.00	.00	0.	94	0	A17	.00

							EX5								
1	46A	47.5	36.77	1468.6	1045.23	0	0.	.00000	.00	.00	0.	94	21	A17	.01
1	47A	38.8	24.78	1507.4	1066.88	0	0.	.00000	.00	.00	0.	94	29	A17	.01
1	48A	38.8	25.30	1546.2	1088.72	2	888.	.04000	.00	.00	0.	94	28	A17	.01
1	49A	25.9	26.41	1572.1	1090.45	2	1226.	.03000	.00	.00	0.	94	13	A17	.01
1	50A	68.3	44.53	1640.4	1123.15	0	0.	.00000	.00	.00	0.	94	28	A17	.01
1	51A	.0	.00	1640.4	1123.15	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	52A	.0	.00	1640.4	1123.15	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	53F	45.6	36.35	45.6	36.35	1	2348.	.11000	.00	.00	0.	94	20	A17	.01
1	54F	53.1	38.06	98.7	68.23	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	55AF	98.7	68.23	1739.1	1181.92	2	1223.	.02000	.00	.00	0.	94	0	A17	.00
1	56A	46.0	34.64	1785.1	1189.42	2	1272.	.02000	.00	.00	0.	94	22	A17	.01
1	57A	50.8	36.41	1835.9	1200.52	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	58A	.0	.00	1835.9	1200.52	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	59A	.0	.00	1835.9	1200.52	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	60B	53.0	33.85	53.0	33.85	1	1480.	.11000	.00	.00	0.	94	29	A17	.01
1	61B	38.3	34.78	91.3	63.89	0	0.	.00000	.00	.00	0.	94	16	A17	.01
1	62AB	91.3	63.89	1927.2	1235.22	2	589.	.03000	.00	.00	0.	94	0	A17	.00
1	63A	47.7	36.93	1974.9	1240.10	2	826.	.02000	.00	.00	0.	94	21	A17	.01
1	64A	50.0	45.40	2024.9	1243.36	2	1214.	.03000	.00	.00	0.	94	16	A17	.01
1	65A	45.7	44.65	2070.6	1244.20	2	1165.	.02000	.00	.00	0.	94	14	A17	.01
1	66A	38.3	39.05	2108.9	1243.49	0	0.	.00000	.00	.00	0.	94	13	A17	.01

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake, Exist. 5-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	17.49	200	17.76	300	18.56	400	19.57
500	20.70	600	22.17	700	23.99	800	26.39	900	29.83
1000	35.16	1050	47.01	1100	106.86	1110	130.87	1120	163.14
1130	210.78	1131	216.32	1132	221.87	1133	227.65	1134	233.74
1135	240.10	1136	246.73	1137	253.79	1138	261.15	1139	268.89
1140	277.02	1141	285.85	1142	294.96	1143	304.74	1144	314.94
1145	326.17	1146	338.06	1147	350.56	1148	363.87	1149	381.09
1150	399.54	1151	420.56	1152	444.13	1153	470.46	1154	496.39
1155	524.46	1156	553.17	1157	582.62	1158	611.70	1159	640.78
1160	669.56	1161	698.32	1162	724.68	1163	751.78	1164	778.53
1165	804.66	1166	831.08	1167	860.93	1168	891.33	1169	923.42
1170	957.22	1171	992.56	1172	1029.04	1173	1067.09	1174	1105.55
1175	1142.73	1176	1177.04	1177	1205.64	1178	1226.82	1179	1239.66
1180	1243.49	1181	1238.46	1182	1225.62	1183	1206.02	1184	1180.11
1185	1149.45	1186	1114.08	1187	1075.52	1188	1034.06	1189	990.73
1190	946.36	1191	901.86	1192	857.52	1193	814.10	1194	772.07
1195	731.43	1196	692.73	1197	655.86	1198	620.74	1199	587.50
1200	556.10	1201	526.56	1202	498.78	1203	472.70	1204	448.19
1205	425.27	1206	403.82	1207	383.74	1208	364.92	1209	347.34
1210	330.86	1211	315.37	1212	300.89	1213	287.28	1214	274.50
1215	262.52	1216	251.26	1217	240.73	1218	230.81	1219	221.43
1220	212.59	1221	204.07	1222	195.70	1223	187.65	1224	180.04
1225	172.93	1226	166.26	1227	160.18	1228	154.46	1229	148.89
1230	143.55	1231	138.56	1232	133.84	1233	129.50	1234	125.49
1235	121.65	1236	117.97	1237	114.56	1238	111.36	1239	108.35
1240	105.67	1241	102.94	1242	100.19	1243	97.41	1244	94.63
1245	91.90	1246	89.20	1247	86.55	1248	83.94	1249	81.42
1250	78.97	1251	76.60	1252	74.28	1253	72.07	1254	69.95
1255	67.91	1256	65.95	1257	64.07	1258	62.27	1259	60.56
1260	58.95	1261	57.41	1262	55.97	1263	54.61	1264	53.35
1265	52.18	1266	51.11	1267	50.13	1268	49.26	1269	48.48
1270	47.76	1271	47.11	1272	46.56	1273	45.96	1274	45.38
1275	44.79	1276	44.20	1277	43.61	1278	43.03	1279	42.45
1280	41.86	1281	41.30	1282	40.75	1283	40.21	1284	39.69
1285	39.18	1286	38.68	1287	38.21	1288	37.74	1289	37.30
1290	36.85	1291	36.45	1292	36.06	1293	35.72	1294	35.35
1295	35.03	1296	34.74	1297	34.45	1298	34.15	1299	33.90
1300	33.63	1310	31.32	1320	29.58	1330	28.18	1340	26.95
1350	25.94	1360	25.00	1370	24.18	1380	23.44	1390	22.76
1400	22.11	1420	21.04	1440	20.10	1460	18.14	1500	17.17

TOTAL VOLUME THIS HYDROGRAPH = 136.00(Ac.Ft)

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006    1    1A  94  140.930A11                                        G1
006    1    2A  94  150.624A112 1320 10000
006    1    3A  94  148.824A112  960 10000
006    1    4A  94  137.821A112 1272 08000
006    1    5A  94  146.927A11
006    1    6A  94       99A11
006    1    7A  94       99A11
006    1    8B  94  155.423A111 1656 12000
006    1    9B  94  151.026A11
006    1   10AB 94         A112 1663 08000
006    1   11A  94  146.329A11
006    1   12A  94  146.729A11
006    1   13A  94  155.026A112 1584 04000
006    1   14A  94  152.827A11
006    1   15A  94  152.630A112 1085 05000
006    1   16A  94  123.522A11
006    1   17A  94       99A11
006    1   18A  94       99A11
006    1   19C  94  126.017A112 1584 09000
006    1   20C  94  148.730A11
006    1   21AC 94         A112 1337 05000
006    1   22A  94  149.730A11
006    1   23A  94       99A11
006    1   24A  94       99A11
006    1   25D  94  145.028A11
006    1   26D  94  131.129A112 1020 10000
006    1   27D  94  149.329A112 1290 10000
006    1   28D  94  147.530A11
006    1   29D  94  129.227A112 1232 10000
006    1   30D  94  148.623A112 1423 08000
006    1   31D  94  141.130A11
006    1   32AD 94         A112  827 03000
006    1   33A  94       99A11
006    1   34A  94       99A11
006    1   35A  94  141.330A112  488 04000
006    1   36A  94  146.427A112 1164 03000
006    1   37A  94  126.823A11
006    1   38A  94  164.130A112 1779 04000
006    1   39A  94  141.627A11
006    1   40A  94       99A11
006    1   41A  94       99A11
006    1   42E  94  161.930A11
006    1   43E  94  150.128A112 1851 08000
006    1   44E  94  164.430A11
006    1   45AE 94         A112 1975 03000
006    1   46A  94  147.530A11
006    1   47A  94  138.830A11
006    1   48A  94  138.830A112  888 04000
006    1   49A  94  125.920A112 1226 03000
006    1   50A  94  168.330A11
006    1   51A  94       99A11
006    1   52A  94       99A11
006    1   53F  94  145.630A111 2348 11000
006    1   54F  94  153.130A11
006    1   55AF 94         A112 1223 02000
006    1   56A  94  146.030A112 1272 02000
006    1   57A  94  150.830A11
006    1   58A  94       99A11
006    1   59A  94       99A11
006    1   60B  94  153.030A111 1480 11000
006    1   61B  94  138.324A11
006    1   62AB 94         A112  589 03000
006    1   63A  94  147.730A112  826 02000
006    1   64A  94  150.025A112 1214 03000
006    1   65A  94  145.721A112 1165 02000
006    1   66A  94  138.320A11                                      2  2
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Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. 2-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	14.19	40.9	14.19	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	2A	50.6	20.40	91.5	34.58	2	1320.	.10000	.00	.00	0.	94	24	A11	.01
1	3A	48.8	19.67	140.3	53.65	2	960.	.10000	.00	.00	0.	94	24	A11	.01
1	4A	37.8	16.63	178.1	69.44	2	1272.	.08000	.00	.00	0.	94	21	A11	.01
1	5A	46.9	17.56	225.0	85.81	0	0.	.00000	.00	.00	0.	94	27	A11	.01
1	6A	.0	.00	225.0	85.81	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	7A	.0	.00	225.0	85.81	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	8B	55.4	23.04	55.4	23.04	1	1656.	.12000	.00	.00	0.	94	23	A11	.01
1	9B	51.0	19.51	106.4	40.12	0	0.	.00000	.00	.00	0.	94	26	A11	.01
1	10AB	106.4	40.12	331.4	125.87	2	1663.	.08000	.00	.00	0.	94	0	A11	.00
1	11A	46.3	16.46	377.7	140.47	0	0.	.00000	.00	.00	0.	94	29	A11	.01
1	12A	46.7	16.61	424.4	156.02	0	0.	.00000	.00	.00	0.	94	29	A11	.01
1	13A	55.0	21.04	479.4	175.46	2	1584.	.04000	.00	.00	0.	94	26	A11	.01
1	14A	52.8	19.77	532.2	191.32	0	0.	.00000	.00	.00	0.	94	27	A11	.01
1	15A	52.6	18.24	584.8	207.95	2	1085.	.05000	.00	.00	0.	94	30	A11	.01
1	16A	23.5	10.04	608.3	214.87	0	0.	.00000	.00	.00	0.	94	22	A11	.01
1	17A	.0	.00	608.3	214.87	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	18A	.0	.00	608.3	214.87	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	19C	26.0	13.05	26.0	13.05	2	1584.	.09000	.00	.00	0.	94	17	A11	.01
1	20C	48.7	16.89	74.7	29.26	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	21AC	74.7	29.26	683.0	240.31	2	1337.	.05000	.00	.00	0.	94	0	A11	.00
1	22A	49.7	17.24	732.7	254.27	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	23A	.0	.00	732.7	254.27	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	24A	.0	.00	732.7	254.27	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	25D	45.0	16.42	45.0	16.42	0	0.	.00000	.00	.00	0.	94	28	A11	.01
1	26D	31.1	11.06	76.1	27.48	2	1020.	.10000	.00	.00	0.	94	29	A11	.01
1	27D	49.3	17.53	125.4	44.79	2	1290.	.10000	.00	.00	0.	94	29	A11	.01
1	28D	47.5	16.47	172.9	60.71	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	29D	29.2	10.93	202.1	71.35	2	1232.	.10000	.00	.00	0.	94	27	A11	.01
1	30D	48.6	20.21	250.7	90.04	2	1423.	.08000	.00	.00	0.	94	23	A11	.01
1	31D	41.1	14.25	291.8	103.05	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	32AD	291.8	103.05	1024.5	353.13	2	827.	.03000	.00	.00	0.	94	0	A11	.00
1	33A	.0	.00	1024.5	352.51	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	34A	.0	.00	1024.5	352.51	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	35A	41.3	14.32	1065.8	364.66	2	488.	.04000	.00	.00	0.	94	30	A11	.01
1	36A	46.4	17.37	1112.2	378.12	2	1164.	.03000	.00	.00	0.	94	27	A11	.01
1	37A	26.8	11.15	1139.0	382.41	0	0.	.00000	.00	.00	0.	94	23	A11	.01
1	38A	64.1	22.23	1203.1	400.40	2	1779.	.04000	.00	.00	0.	94	30	A11	.01
1	39A	41.6	15.58	1244.7	408.61	0	0.	.00000	.00	.00	0.	94	27	A11	.01
1	40A	.0	.00	1244.7	408.61	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	41A	.0	.00	1244.7	408.61	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	42E	61.9	21.47	61.9	21.47	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	43E	50.1	18.28	112.0	39.75	2	1851.	.08000	.00	.00	0.	94	28	A11	.01
1	44E	64.4	22.34	176.4	61.01	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	45AE	176.4	61.01	1421.1	459.32	2	1975.	.03000	.00	.00	0.	94	0	A11	.00

							EX2								
1	46A	47.5	16.47	1468.6	466.31	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	47A	38.8	13.46	1507.4	475.30	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	48A	38.8	13.46	1546.2	484.29	2	888.	.04000	.00	.00	0.	94	30	A11	.01
1	49A	25.9	11.76	1572.1	484.17	2	1226.	.03000	.00	.00	0.	94	20	A11	.01
1	50A	68.3	23.69	1640.4	494.28	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	51A	.0	.00	1640.4	494.28	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	52A	.0	.00	1640.4	494.28	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	53F	45.6	15.82	45.6	15.82	1	2348.	.11000	.00	.00	0.	94	30	A11	.01
1	54F	53.1	18.42	98.7	30.56	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	55AF	98.7	30.56	1739.1	518.64	2	1223.	.02000	.00	.00	0.	94	0	A11	.00
1	56A	46.0	15.95	1785.1	521.25	2	1272.	.02000	.00	.00	0.	94	30	A11	.01
1	57A	50.8	17.62	1835.9	521.04	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	58A	.0	.00	1835.9	521.04	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	59A	.0	.00	1835.9	521.04	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	60B	53.0	18.38	53.0	18.38	1	1480.	.11000	.00	.00	0.	94	30	A11	.01
1	61B	38.3	15.44	91.3	31.83	0	0.	.00000	.00	.00	0.	94	24	A11	.01
1	62AB	91.3	31.83	1927.2	535.39	2	589.	.03000	.00	.00	0.	94	0	A11	.00
1	63A	47.7	16.54	1974.9	536.86	2	826.	.02000	.00	.00	0.	94	30	A11	.01
1	64A	50.0	19.68	2024.9	536.63	2	1214.	.03000	.00	.00	0.	94	25	A11	.01
1	65A	45.7	20.11	2070.6	536.11	2	1165.	.02000	.00	.00	0.	94	21	A11	.01
1	66A	38.3	17.38	2108.9	535.05	0	0.	.00000	.00	.00	0.	94	20	A11	.01

Program Package Serial Number: 2083
02/23/15 FILE: EX2 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 3
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake, Exist. 2-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	11.34	200	11.49	300	11.95	400	12.60
500	13.33	600	14.25	700	15.43	800	16.95	900	19.11
1000	22.47	1050	25.54	1100	31.06	1110	32.57	1120	36.85
1130	44.71	1131	45.71	1132	46.80	1133	47.84	1134	49.05
1135	50.34	1136	51.72	1137	53.20	1138	54.77	1139	56.54
1140	58.32	1141	60.36	1142	62.53	1143	64.74	1144	67.23
1145	69.97	1146	72.98	1147	76.21	1148	79.60	1149	84.56
1150	89.83	1151	95.68	1152	102.25	1153	109.71	1154	116.70
1155	124.26	1156	132.52	1157	141.14	1158	150.51	1159	160.17
1160	170.54	1161	180.98	1162	191.73	1163	202.94	1164	214.48
1165	226.37	1166	238.93	1167	252.01	1168	265.74	1169	278.59
1170	291.96	1171	305.56	1172	319.10	1173	332.71	1174	347.69
1175	363.08	1176	378.99	1177	395.48	1178	412.12	1179	428.80
1180	445.11	1181	460.91	1182	476.20	1183	490.65	1184	503.74
1185	514.98	1186	523.93	1187	530.32	1188	534.00	1189	535.05
1190	533.63	1191	529.88	1192	524.00	1193	516.21	1194	506.78
1195	496.03	1196	484.23	1197	471.65	1198	458.48	1199	444.95
1200	431.15	1201	417.24	1202	403.32	1203	389.43	1204	375.66
1205	362.04	1206	348.65	1207	335.51	1208	322.66	1209	310.11
1210	297.89	1211	286.00	1212	274.45	1213	263.31	1214	252.54
1215	242.13	1216	232.09	1217	222.48	1218	213.25	1219	204.36
1220	195.86	1221	187.74	1222	179.97	1223	172.51	1224	165.45
1225	158.70	1226	152.24	1227	146.14	1228	140.28	1229	134.77
1230	129.47	1231	124.46	1232	119.69	1233	115.16	1234	110.86
1235	106.76	1236	102.89	1237	99.18	1238	95.68	1239	92.33
1240	89.18	1241	86.15	1242	83.28	1243	80.55	1244	77.94
1245	75.46	1246	73.10	1247	70.84	1248	68.71	1249	66.65
1250	64.70	1251	62.85	1252	61.07	1253	59.38	1254	57.76
1255	56.20	1256	54.72	1257	53.32	1258	51.95	1259	50.65
1260	49.41	1261	48.21	1262	47.04	1263	45.93	1264	44.87
1265	43.80	1266	42.77	1267	41.77	1268	40.80	1269	39.86
1270	38.97	1271	38.10	1272	37.31	1273	36.52	1274	35.81
1275	35.13	1276	34.49	1277	33.84	1278	33.24	1279	32.67
1280	32.11	1281	31.60	1282	31.10	1283	30.63	1284	30.15
1285	29.69	1286	29.25	1287	28.81	1288	28.39	1289	27.98
1290	27.59	1291	27.21	1292	26.84	1293	26.49	1294	26.16
1295	25.85	1296	25.54	1297	25.26	1298	24.99	1299	24.72
1300	24.46	1310	22.32	1320	20.82	1330	19.59	1340	18.59
1350	17.77	1360	17.04	1370	16.42	1380	15.87	1390	15.36
1400	14.89	1420	14.11	1440	13.41	1460	12.22	1500	11.14

TOTAL VOLUME THIS HYDROGRAPH = 69.41(Ac.Ft)

Section 4

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

Mixed 50 & 25-yr Design Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
DESIGN	1A	40.9	0.01	50	94	2501	0.2	5.8	12	2.29	0.86	0.86	80.55
DESIGN	2A	50.6	0.01	50	94	2085	0.24	5.8	10	2.5	0.86	0.86	108.79
DESIGN	3A	48.8	0.01	50	94	1886	0.17	5.8	10	2.5	0.86	0.86	104.92
DESIGN	4A	37.8	0.01	50	94	1577	0.19	5.8	9	2.63	0.87	0.87	86.49
DESIGN	5A	46.9	0.01	50	94	2013	0.15	5.8	11	2.39	0.86	0.86	96.4
DESIGN	8B	55.4	0.01	50	94	1990	0.29	5.8	10	2.5	0.86	0.86	119.11
DESIGN	9B	51	0.01	50	94	2230	0.22	5.8	11	2.39	0.86	0.86	104.83
DESIGN	11A	46.3	0.01	50	94	2402	0.19	5.8	12	2.29	0.86	0.86	91.18
DESIGN	12A	46.7	0.01	50	94	2523	0.24	5.8	12	2.29	0.86	0.86	91.97
DESIGN	13A	55	0.01	50	94	2188	0.21	5.8	11	2.39	0.86	0.86	113.05
DESIGN	14A	52.8	0.01	50	94	2314	0.24	5.8	11	2.39	0.86	0.86	108.53
DESIGN	15A	52.6	0.01	50	94	2494	0.18	5.8	12	2.29	0.86	0.86	103.59
DESIGN	16A	23.5	0.01	50	94	1862	0.24	5.8	10	2.5	0.86	0.86	50.53
DESIGN	19C	26	0.01	50	94	1296	0.28	5.8	7	2.95	0.88	0.88	67.5
DESIGN	20C	48.7	0.01	50	94	2971	0.16	5.8	14	2.13	0.85	0.85	88.17
DESIGN	22A	49.7	0.01	50	94	3412	0.15	5.8	15	2.06	0.85	0.85	87.02
DESIGN	25D	45	0.01	50	94	2381	0.23	5.8	11	2.39	0.86	0.86	92.49
DESIGN	26D	31.1	0.01	50	94	2454	0.22	5.8	12	2.29	0.86	0.86	61.25
DESIGN	27D	49.3	0.01	50	94	2374	0.18	5.8	12	2.29	0.86	0.86	97.09
DESIGN	28D	47.5	0.01	50	94	2966	0.16	5.8	14	2.13	0.85	0.85	86
DESIGN	29D	29.2	0.01	50	94	2182	0.19	5.8	11	2.39	0.86	0.86	60.02
DESIGN	30D	48.6	0.01	50	94	1877	0.24	5.8	10	2.5	0.86	0.86	104.49
DESIGN	31D	41.1	0.01	50	94	2744	0.19	5.8	13	2.21	0.85	0.85	77.21
DESIGN	35A	41.3	0.01	50	94	2799	0.18	5.8	13	2.21	0.85	0.85	77.58
DESIGN	36A	46.4	0.01	50	94	2330	0.22	5.8	11	2.39	0.86	0.86	95.37
DESIGN	37A	26	0.01	50	94	1890	0.24	5.8	10	2.5	0.86	0.86	57.62
DESIGN	38A	64.1	0.01	50	94	3294	0.14	5.8	15	2.06	0.85	0.85	112.24
DESIGN	39A	56.1	0.01	50	94	2202	0.1	5.8	12	2.29	0.86	0.86	114.62
DESIGN	42E	37.8	0.02	50	94	2151	0.07	5.8	13	2.21	0.85	0.85	71.01
DESIGN	43F	59.1	0.01	50	94	3511	0.15	5.8	16	2	0.85	0.85	100.47
DESIGN	44F	52.1	0.01	50	94	2154	0.17	5.8	11	2.39	0.86	0.86	107.09
DESIGN	50A	10.8	0.01	50	94	1130	0.27	5.8	7	2.95	0.88	0.88	28.04
DESIGN	51A	13.3	0.01	50	94	1030	0.43	5.8	6	3.18	0.89	0.89	37.64
DESIGN	52A	11.9	0.01	50	94	836	0.45	5.8	5	3.46	0.89	0.89	36.64
DESIGN	53A	15.4	0.01	50	94	1212	0.34	5.8	7	2.95	0.88	0.88	39.98
DESIGN	54A	9.7	0.01	50	94	833	0.26	5.8	6	3.18	0.89	0.89	27.45

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

DESIGN	55B	56.4	0.15	50	94	1150	0.05	5.8	9	2.63	0.87	0.87	129.05
DESIGN	57A	20.8	0.02	50	94	1272	0.25	5.8	7	2.95	0.88	0.88	54
DESIGN	58A	7	0.01	50	94	636	0.24	5.8	5	3.46	0.89	0.89	21.56
DESIGN	59A	9.6	0.01	50	94	180	0.11	5.8	5	3.46	0.89	0.89	29.56
DESIGN	60A	4.2	0.01	50	94	1103	0.19	5.8	7	2.95	0.88	0.88	10.9
DESIGN	61A	44.3	0.01	50	94	636	0.25	5.8	11	2.39	0.86	0.86	91.05
DESIGN	62A	37.9	0.01	50	94	1795	0.16	5.8	10	2.5	0.86	0.86	81.49
DESIGN	65C	40.4	0.75	25	94	2025	0.05	5.1	14	1.88	0.84	0.89	67.6
DESIGN	66C	39.8	0.5	25	94	4356	0.03	5.1	26	1.4	0.8	0.85	47.36
DESIGN	67C	51	0.6	25	94	3142	0.06	5.1	18	1.67	0.82	0.87	74.1
DESIGN	68C	34.8	0.4	25	94	3412	0.02	5.1	24	1.46	0.8	0.84	42.68
DESIGN	69C	13.1	0.5	25	94	1145	0.04	5.1	10	2.2	0.85	0.88	25.36
DESIGN	70C	63.7	0.75	25	94	4485	0.04	5.1	25	1.43	0.8	0.88	80.16
DESIGN	71C	10	0.5	25	94	1322	0.07	5.1	10	2.2	0.85	0.88	19.36
DESIGN	73D	7	0.4	25	94	564	0.02	5.1	7	2.6	0.87	0.88	16.02
DESIGN	74D	3.4	0.7	25	94	1762	0.07	5.1	12	2.02	0.85	0.89	6.11
DESIGN	75D	23.6	0.6	25	94	2254	0.03	5.1	17	1.71	0.82	0.87	35.11
DESIGN	76D	29.3	0.86	50	94	1926	0.02	5.8	15	2.06	0.85	0.89	53.72
DESIGN	78E	15.8	0.5	25	94	2787	0.07	5.1	17	1.71	0.82	0.86	23.24
DESIGN	79E	17.4	0.1	25	94	2252	0.08	5.1	14	1.88	0.84	0.85	27.81
DESIGN	80E	5	0.7	25	94	1611	0.05	5.1	12	2.02	0.85	0.89	8.99
DESIGN	84F	21.4	0.5	25	94	1683	0.06	5.1	12	2.02	0.85	0.88	38.04
DESIGN	85F	27.1	0.5	25	94	1439	0.06	5.1	11	2.1	0.85	0.88	50.08
DESIGN	86F	14.6	0.5	25	94	968	0.04	5.1	9	2.31	0.86	0.88	29.68
DESIGN	88C	34.4	0.5	50	94	1818	0.03	5.8	13	2.21	0.85	0.88	66.9
DESIGN	89C	23.7	0.7	25	94	2887	0.04	5.1	19	1.62	0.82	0.88	33.79
DESIGN	90C	6.9	0.02	50	94	1127	0.15	5.8	7	2.95	0.88	0.88	17.91
DESIGN	93C	2.8	0.02	50	94	409	0.1	5.8	5	3.46	0.89	0.89	8.62
DESIGN	95C	1.9	0.02	50	94	216	0.1	5.8	5	3.46	0.89	0.89	5.85
DESIGN	97C	1.2	0.02	50	94	198	0.1	5.8	5	3.46	0.89	0.89	3.7
DESIGN	99C	4.3	0.02	50	94	424	0.1	5.8	5	3.46	0.89	0.89	13.24
DESIGN	102A	16	0.01	50	94	703	0.27	5.8	5	3.46	0.89	0.89	49.27
DESIGN	200A	26.7	0.5	25	94	3387	0.04	5.1	21	1.55	0.81	0.86	35.59
DESIGN	201A	21.3	0.82	25	94	1135	0.1145	5.1	8	2.43	0.86	0.89	46.34
DESIGN	OP1	2.5	0.91	50	94	250	0.05	5.8	5	3.46	0.89	0.9	7.78
DESIGN	OP5	5	0.30	50	94	750	0.28	5.8	5	3.46	0.89	0.89	15.48

Program Package Serial Number: 2083
12/07/16 FILE: prd INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	81.79	40.9	81.79	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	2A	50.6	111.78	91.5	193.57	2	1320.	.10000	.00	.00	0.	294	10	A29	.01
1	3A	48.8	107.80	140.3	295.20	2	960.	.10000	.00	.00	0.	294	10	A29	.01
1	4A	37.8	87.55	178.1	375.91	2	1272.	.08000	.00	.00	0.	294	9	A29	.01
1	5A	46.9	98.25	225.0	463.32	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	6A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	122.38	55.4	122.38	1	1656.	.12000	.00	.00	0.	294	10	A29	.01
1	9B	51.0	106.84	106.4	213.34	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	10AB	106.4	213.34	331.4	676.47	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	92.59	377.7	756.56	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	12A	46.7	93.39	424.4	841.37	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	13A	55.0	115.22	479.4	944.80	2	1584.	.04000	.00	.00	0.	294	11	A29	.01
1	14A	52.8	110.61	532.2	1023.37	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	15A	52.6	105.19	584.8	1118.22	2	1085.	.05000	.00	.00	0.	294	12	A29	.01
1	16A	23.5	51.91	608.3	1144.93	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	17A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	67.96	26.0	67.96	2	1584.	.09000	.00	.00	0.	294	7	A29	.01
1	20C	48.7	90.12	74.7	152.92	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	21AC	74.7	152.92	683.0	1274.91	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	89.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	23A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	94.27	45.0	94.27	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	26D	31.1	62.20	76.1	156.47	2	1020.	.10000	.00	.00	0.	294	12	A29	.01
1	27D	49.3	98.59	125.4	253.67	2	1290.	.10000	.00	.00	0.	294	12	A29	.01
1	28D	47.5	87.90	172.9	338.17	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	29D	29.2	61.17	202.1	396.41	2	1232.	.10000	.00	.00	0.	294	11	A29	.01
1	30D	48.6	107.36	250.7	491.82	2	1423.	.08000	.00	.00	0.	294	10	A29	.01
1	31D	41.1	78.89	291.8	561.36	0	0.	.00000	.00	.00	0.	294	13	A29	.01
1	32AD	291.8	561.36	1024.5	1889.29	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	79.27	1065.8	1950.89	2	488.	.04000	.00	.00	0.	294	13	A29	.01
1	36A	46.4	97.20	1112.2	2008.46	2	1107.	.02000	.00	.00	0.	294	11	A29	.01
1	37A	26.0	57.43	1138.2	2016.81	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	38A	64.1	114.78	1202.3	2115.57	2	1195.	.01000	.00	.00	0.	294	15	A29	.01
1	39A	56.1	112.19	1258.4	2141.40	5	175.	.02000	12.00	.00	0.	294	12	A29	.01
1	40A	.0	.00	1258.4	2140.49	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	2140.49	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	72.58	37.8	72.58	4	1519.	.03000	2.50	.00	0.	294	13	A29	.02
1	43F	59.1	102.10	59.1	102.10	0	0.	.00000	.00	.00	0.	294	16	A29	.01
1	44F	52.1	109.15	111.2	211.24	4	161.	.06000	3.25	.00	0.	294	11	A29	.01
1	45EF	111.2	210.88	149.0	279.10	4	1818.	.06000	3.75	.00	0.	94	0	A29	.00
1	46AE	149.0	276.95	1407.4	2352.80	5	625.	.02000	13.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	2352.06	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	2352.06	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	2352.06	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	28.23	1418.2	2357.23	5	618.	.02000	13.00	.00	0.	294	7	A29	.01
1	51A	13.3	37.68	1431.5	2355.46	5	728.	.02000	13.00	.00	0.	294	6	A29	.01
1	52A	11.9	37.50	1443.4	2358.34	5	795.	.02000	13.00	.00	0.	294	5	A29	.01
1	53A	15.4	40.26	1458.8	2356.54	5	943.	.02000	13.00	.00	0.	294	7	A29	.01
1	54A	9.7	27.48	1468.5	2354.67	5	320.	.02000	13.00	.00	0.	294	6	A29	.01
1	55B	56.4	130.87	56.4	130.87	4	1250.	.05000	3.00	.00	0.	294	9	A29	.15
1	56AB	56.4	129.15	1524.9	2379.73	5	1344.	.05000	11.00	.00	0.	94	0	A29	.00
1	57A	20.8	54.37	1545.7	2384.49	5	449.	.05000	11.00	.00	0.	294	7	A29	.02
1	58A	7.0	22.06	1552.7	2381.90	5	680.	.05000	11.00	.00	0.	294	5	A29	.01
1	59A	9.6	30.25	1562.3	2385.17	5	1215.	.05000	11.00	.00	0.	294	5	A29	.01
1	60A	4.2	10.98	1566.5	2378.63	5	567.	.05000	11.00	.00	0.	294	7	A29	.01
1	61A	44.3	92.80	1610.8	2396.11	5	803.	.05000	11.00	.00	0.	294	11	A29	.01
1	62A	37.9	83.72	1648.7	2406.79	5	642.	.05000	11.00	.00	0.	294	10	A29	.01
1	63A	.0	.00	1648.7	2402.55	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PRD							
1	64A	.0	.00	1648.7	2402.55	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	68.18	40.4	68.18	4	664.	.06000	2.25	.00	0.	94	14	A26	.75
1	66C	39.8	48.39	80.2	116.36	4	1491.	.06000	2.75	.00	0.	94	26	A26	.50
1	67C	51.0	75.31	131.2	190.47	0	0.	.00000	.00	.00	0.	94	18	A26	.60
1	68C	34.8	43.57	166.0	233.96	4	880.	.06000	3.50	.00	0.	94	24	A26	.40
1	69C	13.1	25.83	179.1	256.99	4	832.	.06000	3.50	.00	0.	94	10	A26	.50
1	70C	63.7	81.18	242.8	336.69	4	566.	.06000	4.00	.00	0.	94	25	A26	.75
1	71C	10.0	19.72	252.8	352.39	4	27.	.06000	4.00	.00	0.	94	10	A26	.50
1	72C	.0	.00	252.8	352.29	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	73D	7.0	16.16	7.0	16.16	4	1814.	.06000	2.00	.00	0.	94	7	A26	.40
1	74D	3.4	6.16	10.4	21.28	4	2106.	.02000	2.00	.00	0.	94	12	A26	.70
1	75D	23.6	35.87	34.0	53.26	4	1753.	.02000	2.50	.00	0.	94	17	A26	.60
1	76D	29.3	53.99	63.3	99.50	4	255.	.02000	3.00	.00	0.	94	15	A29	.86
1	77D	.0	.00	63.3	99.39	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	23.82	15.8	23.82	4	670.	.05000	2.00	.00	0.	94	17	A26	.50
1	79E	17.4	28.07	33.2	51.63	4	1024.	.05000	2.00	.00	0.	94	14	A26	.10
1	80E	5.0	9.06	38.2	60.04	4	81.	.05000	2.25	.00	0.	94	12	A26	.70
1	81DE	38.2	59.99	101.5	158.11	4	404.	.05000	3.00	.00	0.	94	0	A26	.00
1	82CD	101.5	157.98	354.3	509.75	4	947.	.05000	4.75	.00	0.	94	0	A26	.00
1	83C	.0	.00	354.3	508.81	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	84F	21.4	38.34	21.4	38.34	4	1656.	.06000	2.00	.00	0.	94	12	A26	.50
1	85F	27.1	50.77	48.5	87.01	4	1070.	.06000	2.50	.00	0.	94	11	A26	.50
1	86F	14.6	30.09	63.1	114.58	4	16.	.06000	2.75	.00	0.	94	9	A26	.50
1	87CF	63.1	114.55	417.4	613.40	4	585.	.05000	5.00	.00	0.	94	0	A26	.00
1	88C	34.4	66.32	451.8	673.88	4	523.	.05000	5.25	.00	0.	94	13	A29	.50
1	89C	23.7	34.38	475.5	705.90	4	449.	.20000	4.25	.00	0.	94	19	A26	.70
1	90C	6.9	17.72	482.4	712.26	0	0.	.00000	.00	.00	0.	94	7	A29	.02
1	91C	.0	.00	482.4	712.26	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	712.26	4	85.	.05000	5.25	.00	0.	94	99	A29	.00
1	93C	2.8	8.68	485.2	713.31	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	713.31	4	85.	.05000	5.50	.00	0.	94	99	A29	.00
1	95C	1.9	5.89	487.1	714.47	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	714.47	4	76.	.05000	5.50	.00	0.	94	99	A29	.00
1	97C	1.2	3.72	488.3	715.18	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	715.18	4	283.	.05000	5.50	.00	0.	94	99	A29	.00
1	99C	4.3	7.54	492.6	722.09	0	0.	.00000	.00	.00	0.	94	15	A29	.02
1	100C	.0	.00	492.6	722.09	4	51.	.05000	5.50	.00	0.	94	99	A29	.00
1	101AC	492.6	722.05	2141.3	2900.79	5	36.	.05000	12.00	.00	0.	94	0	A29	.00
1	102A	16.0	50.42	2157.3	2906.12	0	0.	.00000	.00	.00	0.	294	5	A29	.01

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LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	37.02	200	37.97	300	39.99	400	42.14
500	44.71	600	48.03	700	52.21	800	66.45	900	110.11
1000	183.36	1050	258.14	1100	393.25	1110	439.99	1120	511.68
1130	618.03	1131	630.71	1132	643.22	1133	656.43	1134	670.32
1135	685.23	1136	700.60	1137	717.18	1138	735.21	1139	754.08
1140	773.20	1141	792.85	1142	813.38	1143	834.59	1144	856.51
1145	880.25	1146	906.57	1147	934.87	1148	964.70	1149	1002.67
1150	1052.43	1151	1110.29	1152	1176.64	1153	1254.94	1154	1338.43
1155	1422.35	1156	1505.68	1157	1585.07	1158	1659.50	1159	1725.75
1160	1784.74	1161	1842.44	1162	1903.27	1163	1970.77	1164	2048.47
1165	2136.00	1166	2225.54	1167	2305.83	1168	2366.13	1169	2399.52
1170	2402.55	1171	2375.15	1172	2318.41	1173	2236.62	1174	2135.38
1175	2020.49	1176	1899.04	1177	1778.00	1178	1656.66	1179	1536.07
1180	1423.27	1181	1319.53	1182	1227.04	1183	1143.72	1184	1065.22
1185	993.10	1186	928.40	1187	869.76	1188	816.23	1189	767.75
1190	725.24	1191	689.35	1192	659.58	1193	630.71	1194	601.59
1195	574.60	1196	549.68	1197	526.92	1198	506.16	1199	487.14
1200	469.39	1201	452.73	1202	437.13	1203	422.41	1204	408.65
1205	396.03	1206	384.30	1207	373.26	1208	362.89	1209	353.24
1210	344.05	1211	335.26	1212	326.82	1213	318.81	1214	311.18
1215	303.69	1216	296.50	1217	289.68	1218	283.05	1219	276.72
1220	270.79	1221	265.08	1222	259.80	1223	255.45	1224	251.27
1225	247.07	1226	242.80	1227	238.56	1228	234.35	1229	230.09
1230	225.76	1231	221.45	1232	217.32	1233	213.37	1234	209.54
1235	205.77	1236	202.01	1237	198.29	1238	194.59	1239	190.94
1240	187.67	1241	184.77	1242	182.19	1243	179.76	1244	177.41
1245	174.97	1246	172.39	1247	169.74	1248	167.12	1249	164.62
1250	162.05	1251	159.39	1252	156.75	1253	154.14	1254	151.54
1255	149.05	1256	146.60	1257	144.18	1258	141.82	1259	139.30
1260	136.83	1261	134.45	1262	132.03	1263	129.69	1264	127.46
1265	125.20	1266	122.97	1267	120.80	1268	118.62	1269	116.57
1270	114.59	1271	112.62	1272	110.78	1273	109.23	1274	107.82
1275	106.45	1276	105.02	1277	103.52	1278	102.02	1279	100.52
1280	99.02	1281	97.54	1282	96.05	1283	94.56	1284	93.07
1285	91.60	1286	90.15	1287	88.72	1288	87.31	1289	85.92
1290	84.54	1291	83.20	1292	81.87	1293	80.58	1294	79.31
1295	78.08	1296	76.87	1297	75.69	1298	74.54	1299	73.42
1300	72.33	1310	64.61	1320	59.71	1330	55.27	1340	52.31
1350	50.18	1360	48.45	1370	47.07	1380	45.76	1390	44.53
1400	43.52	1420	41.74	1440	40.06	1460	37.02	1500	37.02

TOTAL VOLUME THIS HYDROGRAPH = 294.93(Ac.Ft)

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LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	32.16	200	33.62	300	35.37	400	37.24
500	39.60	600	42.60	700	46.45	800	51.81	900	62.35
1000	82.73	1050	108.18	1100	146.74	1110	166.17	1120	195.76
1130	231.15	1131	235.25	1132	239.39	1133	243.82	1134	248.41
1135	253.03	1136	257.91	1137	263.40	1138	269.21	1139	275.49
1140	282.02	1141	289.43	1142	297.63	1143	306.29	1144	315.35
1145	325.68	1146	337.60	1147	350.80	1148	365.09	1149	386.65
1150	416.06	1151	452.26	1152	496.10	1153	546.38	1154	594.09
1155	635.32	1156	667.32	1157	690.99	1158	705.89	1159	712.26
1160	710.84	1161	705.14	1162	690.39	1163	667.28	1164	639.48
1165	609.36	1166	577.28	1167	545.92	1168	514.91	1169	483.11
1170	450.55	1171	417.79	1172	385.77	1173	357.07	1174	331.61
1175	308.32	1176	287.22	1177	267.22	1178	248.60	1179	231.08
1180	214.93	1181	200.45	1182	188.17	1183	177.71	1184	168.69
1185	161.05	1186	154.25	1187	148.34	1188	143.26	1189	138.92
1190	135.03	1191	131.40	1192	128.00	1193	124.95	1194	122.08
1195	119.31	1196	116.76	1197	114.45	1198	112.21	1199	110.07
1200	107.95	1201	106.09	1202	104.36	1203	102.42	1204	100.64
1205	99.08	1206	97.54	1207	95.95	1208	94.47	1209	93.11
1210	91.84	1211	90.61	1212	89.35	1213	88.18	1214	87.05
1215	85.90	1216	84.87	1217	83.86	1218	82.69	1219	81.72
1220	80.74	1221	79.83	1222	78.84	1223	77.74	1224	76.81
1225	75.87	1226	75.00	1227	74.19	1228	73.35	1229	72.56
1230	71.64	1231	70.82	1232	70.01	1233	69.13	1234	68.33
1235	67.61	1236	66.97	1237	66.39	1238	65.65	1239	64.90
1240	64.23	1241	63.68	1242	63.01	1243	62.41	1244	61.93
1245	61.38	1246	60.79	1247	60.18	1248	59.60	1249	59.17
1250	58.60	1251	58.14	1252	57.71	1253	57.23	1254	56.75
1255	56.30	1256	55.83	1257	55.46	1258	55.01	1259	54.59
1260	54.20	1261	53.87	1262	53.39	1263	53.04	1264	52.71
1265	52.36	1266	52.07	1267	51.77	1268	51.49	1269	51.27
1270	50.99	1271	50.74	1272	50.54	1273	50.38	1274	50.22
1275	50.06	1276	49.86	1277	49.66	1278	49.51	1279	49.35
1280	49.17	1281	48.97	1282	48.78	1283	48.59	1284	48.40
1285	48.23	1286	48.01	1287	47.79	1288	47.60	1289	47.40
1290	47.21	1291	47.05	1292	46.86	1293	46.62	1294	46.40
1295	46.28	1296	46.12	1297	45.94	1298	45.77	1299	45.58
1300	45.45	1310	44.14	1320	42.79	1330	41.41	1340	40.12
1350	39.23	1360	38.04	1370	37.01	1380	36.42	1390	35.74
1400	35.12	1420	33.75	1440	32.40	1460	32.05	1500	32.05

TOTAL VOLUME THIS HYDROGRAPH = 132.98(Ac.Ft)

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Program Package Serial Number: 2083

08/20/16 FILE: PRD INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:

Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn, NATURAL HYD.

HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.35	200	.37	300	.39	400	.41
500	.44	600	.47	700	.51	800	.72	900	1.23
1000	1.98	1050	2.98	1100	4.41	1110	6.05	1120	7.02
1130	8.69	1131	8.94	1132	9.20	1133	9.63	1134	10.06
1135	10.49	1136	10.67	1137	11.22	1138	11.58	1139	11.94
1140	12.30	1141	13.21	1142	13.76	1143	14.31	1144	14.86
1145	16.32	1146	17.42	1147	18.52	1148	19.44	1149	26.43
1150	32.56	1151	38.32	1152	44.27	1153	50.42	1154	44.27
1155	37.20	1156	29.77	1157	21.83	1158	13.76	1159	11.58
1160	10.13	1161	9.05	1162	8.16	1163	7.63	1164	6.93
1165	6.58	1166	6.23	1167	5.87	1168	5.52	1169	5.35
1170	4.99	1171	4.82	1172	4.65	1173	4.48	1174	4.31
1175	4.14	1176	3.97	1177	3.97	1178	3.63	1179	3.63
1180	3.46	1181	3.46	1182	3.28	1183	3.28	1184	3.11
1185	3.11	1186	2.94	1187	2.94	1188	2.77	1189	2.77
1190	2.77	1191	2.60	1192	2.43	1193	2.60	1194	2.43
1195	2.26	1196	2.43	1197	2.43	1198	2.26	1199	2.26
1200	2.26	1201	2.09	1202	2.09	1203	1.92	1204	1.92
1205	1.92	1206	1.92	1207	1.75	1208	1.92	1209	1.92
1210	1.75	1211	1.75	1212	1.75	1213	1.75	1214	1.58
1215	1.58	1216	1.58	1217	1.58	1218	1.41	1219	1.58
1220	1.58	1221	1.41	1222	1.41	1223	1.41	1224	1.21
1225	1.21	1226	1.41	1227	1.41	1228	1.41	1229	1.41
1230	1.21	1231	1.01	1232	1.01	1233	1.01	1234	1.01
1235	1.21	1236	1.21	1237	1.21	1238	1.01	1239	1.01
1240	1.01	1241	1.01	1242	.81	1243	1.01	1244	1.01
1245	.81	1246	.81	1247	.81	1248	.81	1249	.81
1250	.81	1251	.81	1252	.81	1253	.81	1254	.61
1255	.81	1256	.61	1257	.81	1258	.61	1259	.61
1260	.61	1261	.61	1262	.52	1263	.61	1264	.61
1265	.52	1266	.61	1267	.61	1268	.52	1269	.61
1270	.61	1271	.52	1272	.52	1273	.61	1274	.52
1275	.52	1276	.52	1277	.52	1278	.49	1279	.52
1280	.52	1281	.52	1282	.52	1283	.52	1284	.49
1285	.49	1286	.49	1287	.49	1288	.49	1289	.49
1290	.49	1291	.49	1292	.49	1293	.49	1294	.49
1295	.49	1296	.49	1297	.49	1298	.49	1299	.49
1300	.49	1310	.47	1320	.45	1330	.44	1340	.42
1350	.42	1360	.40	1370	.40	1380	.39	1390	.37
1400	.39	1420	.36	1440	.35	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 2.77(Ac.Ft)

Program Package Serial Number: 2083
02/27/17 FILE: BD INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Area B, Prop. 25-yr

LOCATION	SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1 200A	26.7	36.20	26.7	36.20	4	610.	.01500	2.25	.00	0.	94	21	A26	.50
1 201A	21.3	46.84	48.0	81.05	0	0.	.00000	.00	.00	0.	94	8	A26	.82
1 202A	.0	.00	48.0	81.05	0	0.	.00000	.00	.00	0.	94	99	A26	.00

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Program Package Serial Number: 2083

02/27/17 FILE: BD INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Area B, Prop. 25-yr HYD.

HYDROGRAPH AT 1 202A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	3.45	200	3.62	300	3.80	400	4.01
500	4.26	600	4.59	700	5.00	800	5.56	900	6.60
1000	8.65	1050	11.29	1100	15.11	1110	17.99	1120	20.87
1130	24.79	1131	25.09	1132	25.54	1133	26.02	1134	26.65
1135	27.15	1136	27.81	1137	28.62	1138	29.48	1139	30.42
1140	31.11	1141	32.25	1142	33.30	1143	34.38	1144	35.41
1145	37.03	1146	38.83	1147	40.62	1148	42.59	1149	48.51
1150	55.28	1151	62.86	1152	70.57	1153	77.53	1154	80.08
1155	81.05	1156	80.63	1157	75.28	1158	69.72	1159	63.85
1160	57.73	1161	51.36	1162	48.98	1163	47.20	1164	45.73
1165	44.41	1166	43.02	1167	41.72	1168	40.27	1169	38.78
1170	37.22	1171	34.80	1172	31.60	1173	28.43	1174	25.15
1175	21.99	1176	19.71	1177	18.37	1178	17.42	1179	16.68
1180	15.89	1181	15.30	1182	14.92	1183	14.45	1184	14.03
1185	13.64	1186	13.26	1187	12.89	1188	12.67	1189	12.47
1190	12.15	1191	11.86	1192	11.55	1193	11.39	1194	11.24
1195	11.11	1196	10.85	1197	10.60	1198	10.34	1199	10.36
1200	10.10	1201	10.00	1202	9.77	1203	9.56	1204	9.59
1205	9.36	1206	9.29	1207	9.06	1208	9.13	1209	8.93
1210	8.89	1211	8.82	1212	8.58	1213	8.52	1214	8.48
1215	8.42	1216	8.22	1217	8.01	1218	7.94	1219	7.88
1220	7.83	1221	7.78	1222	7.60	1223	7.54	1224	7.47
1225	7.44	1226	7.39	1227	7.33	1228	7.14	1229	7.11
1230	7.06	1231	7.00	1232	6.80	1233	6.90	1234	6.71
1235	6.68	1236	6.64	1237	6.60	1238	6.56	1239	6.40
1240	6.52	1241	6.34	1242	6.31	1243	6.25	1244	6.22
1245	6.08	1246	6.17	1247	6.14	1248	6.00	1249	5.97
1250	5.92	1251	5.89	1252	5.86	1253	5.85	1254	5.71
1255	5.69	1256	5.67	1257	5.65	1258	5.63	1259	5.49
1260	5.47	1261	5.46	1262	5.45	1263	5.43	1264	5.42
1265	5.41	1266	5.40	1267	5.39	1268	5.37	1269	5.36
1270	5.35	1271	5.34	1272	5.34	1273	5.33	1274	5.32
1275	5.31	1276	5.18	1277	5.18	1278	5.16	1279	5.15
1280	5.15	1281	5.02	1282	5.02	1283	5.00	1284	5.11
1285	5.11	1286	4.99	1287	4.98	1288	4.96	1289	4.95
1290	4.94	1291	4.93	1292	4.92	1293	4.79	1294	4.90
1295	4.89	1296	4.76	1297	4.87	1298	4.86	1299	4.74
1300	4.74	1310	4.66	1320	4.50	1330	4.31	1340	4.26
1350	4.12	1360	3.96	1370	3.90	1380	3.89	1390	3.77
1400	3.72	1420	3.55	1440	3.45	1460	1.56	1500	1.56

TOTAL VOLUME THIS HYDROGRAPH = 13.63(Ac.Ft)

TC Calculator Results

VTM 73336, Northlake Phase 1
Proposed Condition

50-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
50	1A	40.9	0.01	50	94	2501	0.2	5.8	12	2.29	0.86	0.86	80.55
50	2A	50.6	0.01	50	94	2085	0.24	5.8	10	2.5	0.86	0.86	108.79
50	3A	48.8	0.01	50	94	1886	0.17	5.8	10	2.5	0.86	0.86	104.92
50	4A	37.8	0.01	50	94	1577	0.19	5.8	9	2.63	0.87	0.87	86.49
50	5A	46.9	0.01	50	94	2013	0.15	5.8	11	2.39	0.86	0.86	96.4
50	8B	55.4	0.01	50	94	1990	0.29	5.8	10	2.5	0.86	0.86	119.11
50	9B	51	0.01	50	94	2230	0.22	5.8	11	2.39	0.86	0.86	104.83
50	11A	46.3	0.01	50	94	2402	0.19	5.8	12	2.29	0.86	0.86	91.18
50	12A	46.7	0.01	50	94	2523	0.24	5.8	12	2.29	0.86	0.86	91.97
50	13A	55	0.01	50	94	2188	0.21	5.8	11	2.39	0.86	0.86	113.05
50	14A	52.8	0.01	50	94	2314	0.24	5.8	11	2.39	0.86	0.86	108.53
50	15A	52.6	0.01	50	94	2494	0.18	5.8	12	2.29	0.86	0.86	103.59
50	16A	23.5	0.01	50	94	1862	0.24	5.8	10	2.5	0.86	0.86	50.53
50	19C	26	0.01	50	94	1296	0.28	5.8	7	2.95	0.88	0.88	67.5
50	20C	48.7	0.01	50	94	2971	0.16	5.8	14	2.13	0.85	0.85	88.17
50	22A	49.7	0.01	50	94	3412	0.15	5.8	15	2.06	0.85	0.85	87.02
50	25D	45	0.01	50	94	2381	0.23	5.8	11	2.39	0.86	0.86	92.49
50	26D	31.1	0.01	50	94	2454	0.22	5.8	12	2.29	0.86	0.86	61.25
50	27D	49.3	0.01	50	94	2374	0.18	5.8	12	2.29	0.86	0.86	97.09
50	28D	47.5	0.01	50	94	2966	0.16	5.8	14	2.13	0.85	0.85	86
50	29D	29.2	0.01	50	94	2182	0.19	5.8	11	2.39	0.86	0.86	60.02
50	30D	48.6	0.01	50	94	1877	0.24	5.8	10	2.5	0.86	0.86	104.49
50	31D	41.1	0.01	50	94	2744	0.19	5.8	13	2.21	0.85	0.85	77.21
50	35A	41.3	0.01	50	94	2799	0.18	5.8	13	2.21	0.85	0.85	77.58
50	36A	46.4	0.01	50	94	2330	0.22	5.8	11	2.39	0.86	0.86	95.37
50	37A	26	0.01	50	94	1890	0.24	5.8	10	2.5	0.86	0.86	57.62
50	38A	64.1	0.01	50	94	3294	0.14	5.8	15	2.06	0.85	0.85	112.24
50	39A	56.1	0.01	50	94	2202	0.1	5.8	12	2.29	0.86	0.86	114.62
50	42E	37.8	0.02	50	94	2151	0.07	5.8	13	2.21	0.85	0.85	71.01
50	43F	59.1	0.01	50	94	3511	0.15	5.8	16	2	0.85	0.85	100.47
50	44F	52.1	0.01	50	94	2154	0.17	5.8	11	2.39	0.86	0.86	107.09
50	50A	10.8	0.01	50	94	1130	0.27	5.8	7	2.95	0.88	0.88	28.04
50	51A	13.3	0.01	50	94	1030	0.43	5.8	6	3.18	0.89	0.89	37.64
50	52A	11.9	0.01	50	94	836	0.45	5.8	5	3.46	0.89	0.89	36.64

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

50	53A	15.4	0.01	50	94	1212	0.34	5.8	7	2.95	0.88	0.88	39.98
50	54A	9.7	0.01	50	94	833	0.26	5.8	6	3.18	0.89	0.89	27.45
50	55B	56.4	0.15	50	94	1150	0.05	5.8	9	2.63	0.87	0.87	129.05
50	57A	20.8	0.02	50	94	1272	0.25	5.8	7	2.95	0.88	0.88	54
50	58A	7	0.01	50	94	636	0.24	5.8	5	3.46	0.89	0.89	21.56
50	59A	9.6	0.01	50	94	180	0.11	5.8	5	3.46	0.89	0.89	29.56
50	60A	4.2	0.01	50	94	1103	0.19	5.8	7	2.95	0.88	0.88	10.9
50	61A	44.3	0.01	50	94	636	0.25	5.8	11	2.39	0.86	0.86	91.05
50	62A	37.9	0.01	50	94	1795	0.16	5.8	10	2.5	0.86	0.86	81.49
50	65C	40.4	0.75	50	94	2025	0.05	5.8	13	2.21	0.85	0.89	79.46
50	66C	39.8	0.5	50	94	4356	0.03	5.8	24	1.66	0.82	0.86	56.82
50	67C	51	0.6	50	94	3142	0.06	5.8	17	1.95	0.84	0.88	87.52
50	68C	34.8	0.4	50	94	3412	0.02	5.8	22	1.72	0.83	0.86	51.48
50	69C	13.1	0.5	50	94	1145	0.04	5.8	10	2.5	0.86	0.88	28.82
50	70C	63.7	0.75	50	94	4485	0.04	5.8	23	1.69	0.82	0.88	94.73
50	71C	10	0.5	50	94	1322	0.07	5.8	10	2.5	0.86	0.88	22
50	73D	7	0.4	50	94	564	0.02	5.8	7	2.95	0.88	0.89	18.38
50	74D	3.4	0.7	50	94	1762	0.07	5.8	11	2.39	0.86	0.89	7.23
50	75D	23.6	0.6	50	94	2254	0.03	5.8	15	2.06	0.85	0.88	42.78
50	76D	29.3	0.86	50	94	1926	0.02	5.8	15	2.06	0.85	0.89	53.72
50	78E	15.8	0.5	50	94	2787	0.07	5.8	15	2.06	0.85	0.88	28.64
50	79E	17.4	0.1	50	94	2252	0.08	5.8	13	2.21	0.85	0.86	33.07
50	80E	5	0.7	50	94	1611	0.05	5.8	11	2.39	0.86	0.89	10.64
50	84F	21.4	0.5	50	94	1683	0.06	5.8	11	2.39	0.86	0.88	45.01
50	85F	27.1	0.5	50	94	1439	0.06	5.8	10	2.5	0.86	0.88	59.62
50	86F	14.6	0.5	50	94	968	0.04	5.8	8	2.77	0.87	0.89	35.99
50	88C	34.4	0.5	50	94	1818	0.03	5.8	13	2.21	0.85	0.88	66.9
50	89C	23.7	0.7	50	94	2887	0.04	5.8	17	1.95	0.84	0.88	40.67
50	90C	6.9	0.02	50	94	1127	0.15	5.8	7	2.95	0.88	0.88	17.91
50	93C	2.8	0.02	50	94	409	0.1	5.8	5	3.46	0.89	0.89	8.62
50	95C	1.9	0.02	50	94	216	0.1	5.8	5	3.46	0.89	0.89	5.85
50	97C	1.2	0.02	50	94	198	0.1	5.8	5	3.46	0.89	0.89	3.7
50	99C	4.3	0.02	50	94	424	0.1	5.8	5	3.46	0.89	0.89	13.24
50	102A	16	0.01	50	94	703	0.27	5.8	5	3.46	0.89	0.89	49.27

TC Calculator Results

VTM 73336, Northlake Phase 1
Proposed Condition

25-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
25	1A	40.9	0.01	25	94	2501	0.2	5.1	13	1.94	0.84	0.84	66.65
25	2A	50.6	0.01	25	94	2085	0.24	5.1	11	2.1	0.85	0.85	90.32
25	3A	48.8	0.01	25	94	1886	0.17	5.1	11	2.1	0.85	0.85	87.11
25	4A	37.8	0.01	25	94	1577	0.19	5.1	10	2.2	0.85	0.85	70.69
25	5A	46.9	0.01	25	94	2013	0.15	5.1	12	2.02	0.85	0.85	80.53
25	8B	55.4	0.01	25	94	1990	0.29	5.1	11	2.1	0.85	0.85	98.89
25	9B	51	0.01	25	94	2230	0.22	5.1	12	2.02	0.85	0.85	87.57
25	11A	46.3	0.01	25	94	2402	0.19	5.1	13	1.94	0.84	0.84	75.45
25	12A	46.7	0.01	25	94	2523	0.24	5.1	13	1.94	0.84	0.84	76.1
25	13A	55	0.01	25	94	2188	0.21	5.1	12	2.02	0.85	0.85	94.44
25	14A	52.8	0.01	25	94	2314	0.24	5.1	12	2.02	0.85	0.85	90.66
25	15A	52.6	0.01	25	94	2494	0.18	5.1	13	1.94	0.84	0.84	85.72
25	16A	23.5	0.01	25	94	1862	0.24	5.1	11	2.1	0.85	0.85	41.95
25	19C	26	0.01	25	94	1296	0.28	5.1	8	2.44	0.86	0.86	54.56
25	20C	48.7	0.01	25	94	2971	0.16	5.1	15	1.82	0.83	0.83	73.57
25	22A	49.7	0.01	25	94	3412	0.15	5.1	17	1.71	0.82	0.82	69.69
25	25D	45	0.01	25	94	2381	0.23	5.1	12	2.02	0.85	0.85	77.27
25	26D	31.1	0.01	25	94	2454	0.22	5.1	13	1.94	0.84	0.84	50.68
25	27D	49.3	0.01	25	94	2374	0.18	5.1	13	1.94	0.84	0.84	80.34
25	28D	47.5	0.01	25	94	2966	0.16	5.1	15	1.82	0.83	0.83	71.75
25	29D	29.2	0.01	25	94	2182	0.19	5.1	12	2.02	0.85	0.85	50.14
25	30D	48.6	0.01	25	94	1877	0.24	5.1	11	2.1	0.85	0.85	86.75
25	31D	41.1	0.01	25	94	2744	0.19	5.1	14	1.88	0.84	0.84	64.91
25	35A	41.3	0.01	25	94	2799	0.18	5.1	14	1.88	0.84	0.84	65.22
25	36A	46.4	0.01	25	94	2330	0.22	5.1	12	2.02	0.85	0.85	79.67
25	37A	26	0.01	25	94	1890	0.24	5.1	11	2.1	0.85	0.85	47.84
25	38A	64.1	0.01	25	94	3294	0.14	5.1	17	1.71	0.82	0.82	89.88
25	39A	56.1	0.01	25	94	2202	0.1	5.1	14	1.88	0.84	0.84	91.91
25	42E	37.8	0.02	25	94	2151	0.07	5.1	14	1.88	0.84	0.84	59.69
25	43F	59.1	0.01	25	94	3511	0.15	5.1	17	1.71	0.82	0.82	82.87
25	44F	52.1	0.01	25	94	2154	0.17	5.1	12	2.02	0.85	0.85	89.46
25	50A	10.8	0.01	25	94	1130	0.27	5.1	7	2.6	0.87	0.87	24.43
25	51A	13.3	0.01	25	94	1030	0.43	5.1	6	2.79	0.88	0.88	32.65
25	52A	11.9	0.01	25	94	836	0.45	5.1	6	2.79	0.88	0.88	29.22

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

25	53A	15.4	0.01	25	94	1212	0.34	5.1	7	2.6	0.87	0.87	34.83
25	54A	9.7	0.01	25	94	833	0.26	5.1	6	2.79	0.88	0.88	23.82
25	55B	56.4	0.15	25	94	1150	0.05	5.1	10	2.2	0.85	0.86	106.71
25	57A	20.8	0.02	25	94	1272	0.25	5.1	8	2.44	0.86	0.86	43.65
25	58A	7	0.01	25	94	636	0.24	5.1	5	3.04	0.88	0.88	18.73
25	59A	9.6	0.01	25	94	180	0.11	5.1	5	3.04	0.88	0.88	25.68
25	60A	4.2	0.01	25	94	1103	0.19	5.1	8	2.44	0.86	0.86	8.81
25	61A	44.3	0.01	25	94	636	0.25	5.1	12	2.02	0.85	0.85	76.06
25	62A	37.9	0.01	25	94	1795	0.16	5.1	11	2.1	0.85	0.85	67.65
25	65C	40.4	0.75	25	94	2025	0.05	5.1	14	1.88	0.84	0.89	67.6
25	66C	39.8	0.5	25	94	4356	0.03	5.1	26	1.4	0.8	0.85	47.36
25	67C	51	0.6	25	94	3142	0.06	5.1	18	1.67	0.82	0.87	74.1
25	68C	34.8	0.4	25	94	3412	0.02	5.1	24	1.46	0.8	0.84	42.68
25	69C	13.1	0.5	25	94	1145	0.04	5.1	10	2.2	0.85	0.88	25.36
25	70C	63.7	0.75	25	94	4485	0.04	5.1	25	1.43	0.8	0.88	80.16
25	71C	10	0.5	25	94	1322	0.07	5.1	10	2.2	0.85	0.88	19.36
25	73D	7	0.4	25	94	564	0.02	5.1	7	2.6	0.87	0.88	16.02
25	74D	3.4	0.7	25	94	1762	0.07	5.1	12	2.02	0.85	0.89	6.11
25	75D	23.6	0.6	25	94	2254	0.03	5.1	17	1.71	0.82	0.87	35.11
25	76D	29.3	0.86	25	94	1926	0.02	5.1	16	1.76	0.83	0.89	45.9
25	78E	15.8	0.5	25	94	2787	0.07	5.1	17	1.71	0.82	0.86	23.24
25	79E	17.4	0.1	25	94	2252	0.08	5.1	14	1.88	0.84	0.85	27.81
25	80E	5	0.7	25	94	1611	0.05	5.1	12	2.02	0.85	0.89	8.99
25	84F	21.4	0.5	25	94	1683	0.06	5.1	12	2.02	0.85	0.88	38.04
25	85F	27.1	0.5	25	94	1439	0.06	5.1	11	2.1	0.85	0.88	50.08
25	86F	14.6	0.5	25	94	968	0.04	5.1	9	2.31	0.86	0.88	29.68
25	88C	34.4	0.5	25	94	1818	0.03	5.1	15	1.82	0.83	0.87	54.47
25	89C	23.7	0.7	25	94	2887	0.04	5.1	19	1.62	0.82	0.88	33.79
25	90C	6.9	0.02	25	94	1127	0.15	5.1	8	2.44	0.86	0.86	14.48
25	93C	2.8	0.02	25	94	409	0.1	5.1	5	3.04	0.88	0.88	7.49
25	95C	1.9	0.02	25	94	216	0.1	5.1	5	3.04	0.88	0.88	5.08
25	97C	1.2	0.02	25	94	198	0.1	5.1	5	3.04	0.88	0.88	3.21
25	99C	4.3	0.02	25	94	424	0.1	5.1	5	3.04	0.88	0.88	11.5
25	102A	16	0.01	25	94	703	0.27	5.1	5	3.04	0.88	0.88	42.8

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

10-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
10	1A	40.9	0.01	10	94	2501	0.2	4.1	16	1.42	0.8	0.8	46.46
10	2A	50.6	0.01	10	94	2085	0.24	4.1	13	1.56	0.81	0.81	63.94
10	3A	48.8	0.01	10	94	1886	0.17	4.1	13	1.56	0.81	0.81	61.66
10	4A	37.8	0.01	10	94	1577	0.19	4.1	12	1.62	0.82	0.82	50.21
10	5A	46.9	0.01	10	94	2013	0.15	4.1	14	1.51	0.81	0.81	57.36
10	8B	55.4	0.01	10	94	1990	0.29	4.1	12	1.62	0.82	0.82	73.59
10	9B	51	0.01	10	94	2230	0.22	4.1	14	1.51	0.81	0.81	62.38
10	11A	46.3	0.01	10	94	2402	0.19	4.1	15	1.46	0.8	0.8	54.08
10	12A	46.7	0.01	10	94	2523	0.24	4.1	15	1.46	0.8	0.8	54.55
10	13A	55	0.01	10	94	2188	0.21	4.1	14	1.51	0.81	0.81	67.27
10	14A	52.8	0.01	10	94	2314	0.24	4.1	14	1.51	0.81	0.81	64.58
10	15A	52.6	0.01	10	94	2494	0.18	4.1	16	1.42	0.8	0.8	59.75
10	16A	23.5	0.01	10	94	1862	0.24	4.1	12	1.62	0.82	0.82	31.22
10	19C	26	0.01	10	94	1296	0.28	4.1	10	1.77	0.83	0.83	38.2
10	20C	48.7	0.01	10	94	2971	0.16	4.1	18	1.34	0.79	0.79	51.55
10	22A	49.7	0.01	10	94	3412	0.15	4.1	21	1.25	0.78	0.78	48.46
10	25D	45	0.01	10	94	2381	0.23	4.1	15	1.46	0.8	0.8	52.56
10	26D	31.1	0.01	10	94	2454	0.22	4.1	15	1.46	0.8	0.8	36.32
10	27D	49.3	0.01	10	94	2374	0.18	4.1	16	1.42	0.8	0.8	56
10	28D	47.5	0.01	10	94	2966	0.16	4.1	18	1.34	0.79	0.79	50.28
10	29D	29.2	0.01	10	94	2182	0.19	4.1	14	1.51	0.81	0.81	35.71
10	30D	48.6	0.01	10	94	1877	0.24	4.1	12	1.62	0.82	0.82	64.56
10	31D	41.1	0.01	10	94	2744	0.19	4.1	17	1.38	0.79	0.79	44.81
10	35A	41.3	0.01	10	94	2799	0.18	4.1	17	1.38	0.79	0.79	45.03
10	36A	46.4	0.01	10	94	2330	0.22	4.1	15	1.46	0.8	0.8	54.2
10	37A	26	0.01	10	94	1890	0.24	4.1	12	1.62	0.82	0.82	35.6
10	38A	64.1	0.01	10	94	3294	0.14	4.1	20	1.28	0.78	0.78	64
10	39A	56.1	0.01	10	94	2202	0.1	4.1	16	1.42	0.8	0.8	66.12
10	42E	37.8	0.02	10	94	2151	0.07	4.1	17	1.38	0.79	0.79	41.21
10	43F	59.1	0.01	10	94	3511	0.15	4.1	21	1.25	0.78	0.78	57.62
10	44F	52.1	0.01	10	94	2154	0.17	4.1	15	1.46	0.8	0.8	60.85
10	50A	10.8	0.01	10	94	1130	0.27	4.1	9	1.86	0.84	0.84	16.87
10	51A	13.3	0.01	10	94	1030	0.43	4.1	8	1.96	0.84	0.84	21.9
10	52A	11.9	0.01	10	94	836	0.45	4.1	7	2.09	0.85	0.85	21.14
10	53A	15.4	0.01	10	94	1212	0.34	4.1	9	1.86	0.84	0.84	24.06

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

10	54A	9.7	0.01	10	94	833	0.26	4.1	7	2.09	0.85	0.85	17.23
10	55B	56.4	0.15	10	94	1150	0.05	4.1	12	1.62	0.82	0.83	75.84
10	57A	20.8	0.02	10	94	1272	0.25	4.1	10	1.77	0.83	0.83	30.56
10	58A	7	0.01	10	94	636	0.24	4.1	6	2.25	0.85	0.85	13.39
10	59A	9.6	0.01	10	94	180	0.11	4.1	5	2.45	0.86	0.86	20.23
10	60A	4.2	0.01	10	94	1103	0.19	4.1	9	1.86	0.84	0.84	6.56
10	61A	44.3	0.01	10	94	636	0.25	4.1	15	1.46	0.8	0.8	51.74
10	62A	37.9	0.01	10	94	1795	0.16	4.1	13	1.56	0.81	0.81	47.89
10	65C	40.4	0.75	10	94	2025	0.05	4.1	16	1.42	0.8	0.88	50.48
10	66C	39.8	0.5	10	94	4356	0.03	4.1	30	1.05	0.75	0.83	34.69
10	67C	51	0.6	10	94	3142	0.06	4.1	22	1.22	0.77	0.85	52.89
10	68C	34.8	0.4	10	94	3412	0.02	4.1	29	1.07	0.75	0.81	30.16
10	69C	13.1	0.5	10	94	1145	0.04	4.1	12	1.62	0.82	0.86	18.25
10	70C	63.7	0.75	10	94	4485	0.04	4.1	29	1.07	0.75	0.86	58.62
10	71C	10	0.5	10	94	1322	0.07	4.1	12	1.62	0.82	0.86	13.93
10	73D	7	0.4	10	94	564	0.02	4.1	9	1.86	0.84	0.86	11.2
10	74D	3.4	0.7	10	94	1762	0.07	4.1	14	1.51	0.81	0.87	4.47
10	75D	23.6	0.6	10	94	2254	0.03	4.1	20	1.28	0.78	0.85	25.68
10	76D	29.3	0.86	10	94	1926	0.02	4.1	19	1.31	0.78	0.88	33.78
10	78E	15.8	0.5	10	94	2787	0.07	4.1	20	1.28	0.78	0.84	16.99
10	79E	17.4	0.1	10	94	2252	0.08	4.1	17	1.38	0.79	0.8	19.21
10	80E	5	0.7	10	94	1611	0.05	4.1	14	1.51	0.81	0.87	6.57
10	84F	21.4	0.5	10	94	1683	0.06	4.1	14	1.51	0.81	0.86	27.79
10	85F	27.1	0.5	10	94	1439	0.06	4.1	13	1.56	0.81	0.86	36.36
10	86F	14.6	0.5	10	94	968	0.04	4.1	11	1.69	0.82	0.86	21.22
10	88C	34.4	0.5	10	94	1818	0.03	4.1	17	1.38	0.79	0.85	40.35
10	89C	23.7	0.7	10	94	2887	0.04	4.1	22	1.22	0.77	0.86	24.87
10	90C	6.9	0.02	10	94	1127	0.15	4.1	10	1.77	0.83	0.83	10.14
10	93C	2.8	0.02	10	94	409	0.1	4.1	5	2.45	0.86	0.86	5.9
10	95C	1.9	0.02	10	94	216	0.1	4.1	5	2.45	0.86	0.86	4
10	97C	1.2	0.02	10	94	198	0.1	4.1	5	2.45	0.86	0.86	2.53
10	99C	4.3	0.02	10	94	424	0.1	4.1	6	2.25	0.85	0.85	8.22
10	102A	16	0.01	10	94	703	0.27	4.1	6	2.25	0.85	0.85	30.6

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

5-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
5	1A	40.9	0.01	5	94	2501	0.2	3.4	19	1.08	0.75	0.75	33.13
5	2A	50.6	0.01	5	94	2085	0.24	3.4	16	1.17	0.77	0.77	45.59
5	3A	48.8	0.01	5	94	1886	0.17	3.4	16	1.17	0.77	0.77	43.96
5	4A	37.8	0.01	5	94	1577	0.19	3.4	14	1.25	0.78	0.78	36.86
5	5A	46.9	0.01	5	94	2013	0.15	3.4	17	1.14	0.76	0.76	40.63
5	8B	55.4	0.01	5	94	1990	0.29	3.4	15	1.21	0.77	0.77	51.62
5	9B	51	0.01	5	94	2230	0.22	3.4	17	1.14	0.76	0.76	44.19
5	11A	46.3	0.01	5	94	2402	0.19	3.4	18	1.11	0.76	0.76	39.06
5	12A	46.7	0.01	5	94	2523	0.24	3.4	18	1.11	0.76	0.76	39.4
5	13A	55	0.01	5	94	2188	0.21	3.4	17	1.14	0.76	0.76	47.65
5	14A	52.8	0.01	5	94	2314	0.24	3.4	17	1.14	0.76	0.76	45.75
5	15A	52.6	0.01	5	94	2494	0.18	3.4	19	1.08	0.75	0.75	42.61
5	16A	23.5	0.01	5	94	1862	0.24	3.4	15	1.21	0.77	0.77	21.89
5	19C	26	0.01	5	94	1296	0.28	3.4	11	1.4	0.8	0.8	29.12
5	20C	48.7	0.01	5	94	2971	0.16	3.4	22	1.01	0.74	0.74	36.4
5	22A	49.7	0.01	5	94	3412	0.15	3.4	24	0.97	0.74	0.74	35.67
5	25D	45	0.01	5	94	2381	0.23	3.4	17	1.14	0.76	0.76	38.99
5	26D	31.1	0.01	5	94	2454	0.22	3.4	18	1.11	0.76	0.76	26.24
5	27D	49.3	0.01	5	94	2374	0.18	3.4	18	1.11	0.76	0.76	41.59
5	28D	47.5	0.01	5	94	2966	0.16	3.4	22	1.01	0.74	0.74	35.5
5	29D	29.2	0.01	5	94	2182	0.19	3.4	17	1.14	0.76	0.76	25.3
5	30D	48.6	0.01	5	94	1877	0.24	3.4	15	1.21	0.77	0.77	45.28
5	31D	41.1	0.01	5	94	2744	0.19	3.4	20	1.06	0.75	0.75	32.67
5	35A	41.3	0.01	5	94	2799	0.18	3.4	20	1.06	0.75	0.75	32.83
5	36A	46.4	0.01	5	94	2330	0.22	3.4	17	1.14	0.76	0.76	40.2
5	37A	26	0.01	5	94	1890	0.24	3.4	15	1.21	0.77	0.77	24.97
5	38A	64.1	0.01	5	94	3294	0.14	3.4	24	0.97	0.74	0.74	46.01
5	39A	56.1	0.01	5	94	2202	0.1	3.4	20	1.06	0.75	0.75	46.27
5	42E	37.8	0.02	5	94	2151	0.07	3.4	20	1.06	0.75	0.75	30.05
5	43F	59.1	0.01	5	94	3511	0.15	3.4	25	0.95	0.73	0.73	40.99
5	44F	52.1	0.01	5	94	2154	0.17	3.4	17	1.14	0.76	0.76	45.14
5	50A	10.8	0.01	5	94	1130	0.27	3.4	10	1.46	0.8	0.8	12.61
5	51A	13.3	0.01	5	94	1030	0.43	3.4	9	1.54	0.81	0.81	16.59
5	52A	11.9	0.01	5	94	836	0.45	3.4	8	1.63	0.82	0.82	15.91
5	53A	15.4	0.01	5	94	1212	0.34	3.4	10	1.46	0.8	0.8	17.99
5	54A	9.7	0.01	5	94	833	0.26	3.4	8	1.63	0.82	0.82	12.97

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

5	55B	56.4	0.15	5	94	7606	0.06	3.4	14	1.25	0.78	0.8	56.4
5	57A	20.8	0.02	5	94	1272	0.25	3.4	11	1.4	0.8	0.8	23.3
5	58A	7	0.01	5	94	636	0.24	3.4	7	1.73	0.83	0.83	10.05
5	59A	9.6	0.01	5	94	180	0.11	3.4	5	2.03	0.85	0.85	16.56
5	60A	4.2	0.01	5	94	1103	0.19	3.4	11	1.4	0.8	0.8	4.7
5	61A	44.3	0.01	5	94	636	0.25	3.4	18	1.4	0.8	0.8	4.7
5	62A	37.9	0.01	5	94	1795	0.16	3.4	16	1.17	0.77	0.77	34.14
5	65C	40.4	0.75	5	94	2025	0.05	3.4	19	1.08	0.75	0.86	37.52
5	66C	39.8	0.5	5	94	4356	0.03	3.4	30	0.87	0.71	0.81	28.05
5	67C	51	0.6	5	94	3142	0.06	3.4	25	0.95	0.73	0.83	40.21
5	68C	34.8	0.4	5	94	3412	0.02	3.4	30	0.87	0.71	0.79	23.92
5	69C	13.1	0.5	5	94	1145	0.04	3.4	14	1.25	0.78	0.84	13.76
5	70C	63.7	0.75	5	94	4485	0.04	3.4	30	0.87	0.71	0.85	47.11
5	71C	10	0.5	5	94	1322	0.07	3.4	14	1.25	0.78	0.84	10.5
5	73D	7	0.4	5	94	564	0.02	3.4	10	1.46	0.8	0.84	8.58
5	74D	3.4	0.7	5	94	1762	0.07	3.4	16	1.17	0.77	0.86	3.42
5	75D	23.6	0.6	5	94	2254	0.03	3.4	23	0.99	0.74	0.84	19.63
5	76D	29.3	0.86	5	94	1926	0.02	3.4	22	1.01	0.74	0.88	26.04
5	78E	15.8	0.5	5	94	2787	0.07	3.4	23	0.99	0.74	0.82	12.83
5	79E	17.4	0.1	5	94	2252	0.08	3.4	20	1.06	0.75	0.77	14.2
5	80E	5	0.7	5	94	1611	0.05	3.4	17	1.14	0.76	0.86	4.9
5	84F	21.4	0.5	5	94	1683	0.06	3.4	17	1.14	0.76	0.83	20.25
5	85F	27.1	0.5	5	94	1439	0.06	3.4	15	1.21	0.77	0.84	27.54
5	86F	14.6	0.5	5	94	968	0.04	3.4	12	1.34	0.79	0.85	16.63
5	88C	34.4	0.5	5	94	1818	0.03	3.4	20	1.06	0.75	0.83	30.27
5	89C	23.7	0.7	5	94	2887	0.04	3.4	25	0.95	0.73	0.85	19.14
5	90C	6.9	0.02	5	94	1127	0.15	3.4	12	1.34	0.79	0.79	7.3
5	93C	2.8	0.02	5	94	409	0.1	3.4	6	1.86	0.84	0.84	4.37
5	95C	1.9	0.02	5	94	216	0.1	3.4	5	2.03	0.85	0.85	3.28
5	97C	1.2	0.02	5	94	198	0.1	3.4	5	2.03	0.85	0.85	2.07
5	99C	4.3	0.02	5	94	424	0.1	3.4	6	1.86	0.84	0.84	6.72
5	102A	16	0.01	5	94	703	0.27	3.4	8	1.63	0.82	0.82	21.39

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

2-yr Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
2	1A	40.9	0.01	2	94	2501	0.2	2.2	30	0.57	0.6	0.6	13.99
2	2A	50.6	0.01	2	94	2085	0.24	2.2	24	0.63	0.63	0.63	20.08
2	3A	48.8	0.01	2	94	1886	0.17	2.2	24	0.63	0.63	0.63	19.37
2	4A	37.8	0.01	2	94	1577	0.19	2.2	21	0.67	0.65	0.65	16.46
2	5A	46.9	0.01	2	94	2013	0.15	2.2	27	0.59	0.62	0.62	17.16
2	8B	55.4	0.01	2	94	1990	0.29	2.2	23	0.64	0.63	0.63	22.34
2	9B	51	0.01	2	94	2230	0.22	2.2	26	0.6	0.62	0.62	18.97
2	11A	46.3	0.01	2	94	2402	0.19	2.2	29	0.57	0.61	0.61	16.1
2	12A	46.7	0.01	2	94	2523	0.24	2.2	29	0.57	0.61	0.61	16.24
2	13A	55	0.01	2	94	2188	0.21	2.2	26	0.6	0.62	0.62	20.46
2	14A	52.8	0.01	2	94	2314	0.24	2.2	27	0.59	0.62	0.62	19.31
2	15A	52.6	0.01	2	94	2494	0.18	2.2	30	0.57	0.6	0.6	17.99
2	16A	23.5	0.01	2	94	1862	0.24	2.2	22	0.65	0.64	0.64	9.78
2	19C	26	0.01	2	94	1296	0.28	2.2	17	0.74	0.68	0.68	13.08
2	20C	48.7	0.01	2	94	2971	0.16	2.2	30	0.57	0.6	0.6	16.66
2	22A	49.7	0.01	2	94	3412	0.15	2.2	30	0.57	0.6	0.6	17
2	25D	45	0.01	2	94	2381	0.23	2.2	28	0.58	0.61	0.61	15.92
2	26D	31.1	0.01	2	94	2454	0.22	2.2	29	0.57	0.61	0.61	10.81
2	27D	49.3	0.01	2	94	2374	0.18	2.2	29	0.57	0.61	0.61	17.14
2	28D	47.5	0.01	2	94	2966	0.16	2.2	30	0.57	0.6	0.6	16.25
2	29D	29.2	0.01	2	94	2182	0.19	2.2	27	0.59	0.61	0.61	10.51
2	30D	48.6	0.01	2	94	1877	0.24	2.2	23	0.64	0.63	0.63	19.6
2	31D	41.1	0.01	2	94	2744	0.19	2.2	30	0.57	0.6	0.6	14.06
2	35A	41.3	0.01	2	94	2799	0.18	2.2	30	0.57	0.6	0.6	14.12
2	36A	46.4	0.01	2	94	2330	0.22	2.2	27	0.59	0.61	0.61	16.7
2	37A	26	0.01	2	94	1890	0.24	2.2	23	0.64	0.63	0.63	10.81
2	38A	64.1	0.01	2	94	3294	0.14	2.2	30	0.57	0.6	0.6	21.92
2	39A	56.1	0.01	2	94	2202	0.1	2.2	30	0.57	0.6	0.6	19.9
2	42E	37.8	0.02	2	94	2151	0.07	2.2	30	0.57	0.6	0.61	13.14
2	43F	59.1	0.01	2	94	3511	0.15	2.2	30	0.57	0.6	0.6	20.21
2	44F	52.1	0.01	2	94	2154	0.17	2.2	27	0.59	0.61	0.61	18.75
2	50A	10.8	0.01	2	94	1130	0.27	2.2	15	0.78	0.69	0.69	5.81
2	51A	13.3	0.01	2	94	1030	0.43	2.2	13	0.84	0.7	0.7	7.82
2	52A	11.9	0.01	2	94	836	0.45	2.2	11	0.91	0.72	0.72	7.8
2	53A	15.4	0.01	2	94	1212	0.34	2.2	15	0.78	0.69	0.69	8.29
2	54A	9.7	0.01	2	94	833	0.26	2.2	12	0.87	0.71	0.71	5.99

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

2	55B	56.4	0.15	2	94	7606	0.06	2.2	21	0.67	0.65	0.69	26.07
2	57A	20.8	0.02	2	94	1272	0.25	2.2	17	0.74	0.68	0.68	10.47
2	58A	7	0.01	2	94	636	0.24	2.2	11	0.91	0.72	0.72	4.59
2	59A	9.6	0.01	2	94	180	0.11	2.2	5	1.31	0.78	0.78	9.81
2	60A	4.2	0.01	2	94	1103	0.19	2.2	16	0.76	0.68	0.68	2.17
2	61A	44.3	0.01	2	94	636	0.25	2.2	28	0.58	0.61	0.61	15.67
2	62A	37.9	0.01	2	94	1795	0.16	2.2	24	0.63	0.63	0.63	15.04
2	65C	40.4	0.75	2	94	2025	0.05	2.2	26	0.6	0.62	0.83	20.12
2	66C	39.8	0.5	2	94	4356	0.03	2.2	30	0.57	0.6	0.75	17.01
2	67C	51	0.6	2	94	3142	0.06	2.2	30	0.57	0.6	0.78	22.67
2	68C	34.8	0.4	2	94	3412	0.02	2.2	30	0.57	0.6	0.72	14.28
2	69C	13.1	0.5	2	94	1145	0.04	2.2	20	0.68	0.65	0.78	6.95
2	70C	63.7	0.75	2	94	4485	0.04	2.2	30	0.57	0.6	0.83	30.14
2	71C	10	0.5	2	94	1322	0.07	2.2	20	0.68	0.65	0.78	5.3
2	73D	7	0.4	2	94	564	0.02	2.2	14	0.81	0.7	0.78	4.42
2	74D	3.4	0.7	2	94	1762	0.07	2.2	23	0.64	0.63	0.82	1.78
2	75D	23.6	0.6	2	94	2254	0.03	2.2	30	0.57	0.6	0.78	10.49
2	76D	29.3	0.86	2	94	1926	0.02	2.2	29	0.57	0.6	0.86	14.36
2	78E	15.8	0.5	2	94	2787	0.07	2.2	30	0.57	0.6	0.75	6.75
2	79E	17.4	0.1	2	94	2252	0.08	2.2	30	0.57	0.6	0.63	6.25
2	80E	5	0.7	2	94	1611	0.05	2.2	23	0.64	0.63	0.82	2.62
2	84F	21.4	0.5	2	94	1683	0.06	2.2	24	0.63	0.63	0.77	10.38
2	85F	27.1	0.5	2	94	1439	0.06	2.2	21	0.67	0.65	0.78	14.16
2	86F	14.6	0.5	2	94	968	0.04	2.2	18	0.72	0.67	0.79	8.3
2	88C	34.4	0.5	2	94	1818	0.03	2.2	29	0.57	0.6	0.75	14.71
2	89C	23.7	0.7	2	94	2887	0.04	2.2	30	0.57	0.6	0.81	10.94
2	90C	6.9	0.02	2	94	1127	0.15	2.2	17	0.74	0.68	0.68	3.47
2	93C	2.8	0.02	2	94	409	0.1	2.2	9	1	0.74	0.74	2.07
2	95C	1.9	0.02	2	94	216	0.1	2.2	6	1.2	0.77	0.77	1.76
2	97C	1.2	0.02	2	94	198	0.1	2.2	6	1.2	0.77	0.77	1.11
2	99C	4.3	0.02	2	94	424	0.1	2.2	9	1	0.74	0.74	3.18
2	102A	16	0.01	2	94	703	0.27	2.2	11	0.91	0.72	0.72	10.48

LID Clear Frequency

Program Package Serial Number: 2083
12/07/16 FILE: pr50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 50-yr

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	80.14	40.9	80.14	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	2A	50.6	109.62	91.5	189.77	2	1320.	.10000	.00	.00	0.	94	10	A29	.01
1	3A	48.8	105.72	140.3	289.36	2	960.	.10000	.00	.00	0.	94	10	A29	.01
1	4A	37.8	85.90	178.1	368.33	2	1272.	.08000	.00	.00	0.	94	9	A29	.01
1	5A	46.9	96.31	225.0	453.97	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	6A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	120.02	55.4	120.02	1	1656.	.12000	.00	.00	0.	94	10	A29	.01
1	9B	51.0	104.73	106.4	208.82	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	10AB	106.4	208.82	331.4	662.70	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	90.72	377.7	740.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	12A	46.7	91.51	424.4	823.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	13A	55.0	112.95	479.4	924.54	2	1584.	.04000	.00	.00	0.	94	11	A29	.01
1	14A	52.8	108.43	532.2	1001.20	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	15A	52.6	103.07	584.8	1093.26	2	1085.	.05000	.00	.00	0.	94	12	A29	.01
1	16A	23.5	50.91	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	17A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	66.75	26.0	66.75	2	1584.	.09000	.00	.00	0.	94	7	A29	.01
1	20C	48.7	88.22	74.7	149.78	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	21AC	74.7	149.78	683.0	1246.29	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	87.10	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	23A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	92.41	45.0	92.41	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	26D	31.1	60.94	76.1	153.35	2	1020.	.10000	.00	.00	0.	94	12	A29	.01
1	27D	49.3	96.60	125.4	248.57	2	1290.	.10000	.00	.00	0.	94	12	A29	.01
1	28D	47.5	86.05	172.9	331.19	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	29D	29.2	59.96	202.1	388.26	2	1232.	.10000	.00	.00	0.	94	11	A29	.01
1	30D	48.6	105.29	250.7	481.67	2	1423.	.08000	.00	.00	0.	94	10	A29	.01
1	31D	41.1	77.26	291.8	549.56	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	32AD	291.8	549.56	1024.5	1846.33	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	77.64	1065.8	1906.54	2	488.	.04000	.00	.00	0.	94	13	A29	.01
1	36A	46.4	95.28	1112.2	1961.87	2	1107.	.02000	.00	.00	0.	94	11	A29	.01
1	37A	26.0	56.33	1138.2	1968.79	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	38A	64.1	112.33	1202.3	2065.22	2	1195.	.01000	.00	.00	0.	94	15	A29	.01
1	39A	56.1	109.93	1258.4	2088.87	5	175.	.02000	12.00	.00	0.	94	12	A29	.01
1	40A	.0	.00	1258.4	2087.51	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	2087.51	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	71.09	37.8	71.09	4	1519.	.03000	2.50	.00	0.	94	13	A29	.02
1	43F	59.1	99.87	59.1	99.87	0	0.	.00000	.00	.00	0.	94	16	A29	.01
1	44F	52.1	106.99	111.2	206.86	4	161.	.06000	3.25	.00	0.	94	11	A29	.01
1	45EF	111.2	206.51	149.0	273.39	4	1818.	.06000	3.75	.00	0.	94	0	A29	.00
1	46AE	149.0	271.20	1407.4	2293.44	5	625.	.02000	13.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	2292.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	2292.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	2292.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	27.73	1418.2	2297.84	5	618.	.02000	13.00	.00	0.	94	7	A29	.01
1	51A	13.3	37.03	1431.5	2294.49	5	728.	.02000	13.00	.00	0.	94	6	A29	.01
1	52A	11.9	36.89	1443.4	2298.25	5	795.	.02000	13.00	.00	0.	94	5	A29	.01
1	53A	15.4	39.54	1458.8	2297.10	5	943.	.02000	13.00	.00	0.	94	7	A29	.01
1	54A	9.7	27.01	1468.5	2293.22	5	320.	.02000	13.00	.00	0.	94	6	A29	.01
1	55B	56.4	128.76	56.4	128.76	4	1250.	.05000	3.00	.00	0.	94	9	A29	.15
1	56AB	56.4	127.08	1524.9	2318.15	5	1344.	.05000	11.00	.00	0.	94	0	A29	.00
1	57A	20.8	53.41	1545.7	2321.23	5	449.	.05000	11.00	.00	0.	94	7	A29	.02
1	58A	7.0	21.70	1552.7	2320.20	5	680.	.05000	11.00	.00	0.	94	5	A29	.01
1	59A	9.6	29.76	1562.3	2322.90	5	1215.	.05000	11.00	.00	0.	94	5	A29	.01
1	60A	4.2	10.78	1566.5	2317.11	5	567.	.05000	11.00	.00	0.	94	7	A29	.01
1	61A	44.3	90.97	1610.8	2333.24	5	803.	.05000	11.00	.00	0.	94	11	A29	.01
1	62A	37.9	82.11	1648.7	2341.80	5	642.	.05000	11.00	.00	0.	94	10	A29	.01
1	63A	.0	.00	1648.7	2337.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PR50							
1	64A	.0	.00	1648.7	2337.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	78.89	40.4	78.89	4	664.	.06000	2.25	.00	0.	94	13	A29	.75
1	66C	39.8	56.64	80.2	135.39	4	1491.	.06000	2.75	.00	0.	94	24	A29	.50
1	67C	51.0	86.79	131.2	220.10	0	0.	.00000	.00	.00	0.	94	17	A29	.60
1	68C	34.8	51.29	166.0	271.39	4	880.	.06000	3.75	.00	0.	94	22	A29	.40
1	69C	13.1	28.90	179.1	297.27	4	832.	.06000	3.75	.00	0.	94	10	A29	.50
1	70C	63.7	94.60	242.8	390.21	4	566.	.06000	4.25	.00	0.	94	23	A29	.75
1	71C	10.0	22.06	252.8	408.33	4	27.	.06000	4.25	.00	0.	94	10	A29	.50
1	72C	.0	.00	252.8	408.25	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	18.12	7.0	18.12	4	1814.	.06000	2.00	.00	0.	94	7	A29	.40
1	74D	3.4	7.19	10.4	24.12	4	2106.	.02000	2.00	.00	0.	94	11	A29	.70
1	75D	23.6	42.84	34.0	61.72	4	1753.	.02000	2.50	.00	0.	94	15	A29	.60
1	76D	29.3	53.99	63.3	107.61	4	255.	.02000	3.25	.00	0.	94	15	A29	.86
1	77D	.0	.00	63.3	107.50	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	28.51	15.8	28.51	4	670.	.05000	2.00	.00	0.	94	15	A29	.50
1	79E	17.4	32.86	33.2	61.10	4	1024.	.05000	2.25	.00	0.	94	13	A29	.10
1	80E	5.0	10.57	38.2	70.97	4	81.	.05000	2.25	.00	0.	94	11	A29	.70
1	81DE	38.2	70.94	101.5	176.38	4	404.	.05000	3.25	.00	0.	94	0	A29	.00
1	82CD	101.5	176.27	354.3	584.02	4	947.	.05000	5.00	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	582.65	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	44.87	21.4	44.87	4	1656.	.06000	2.00	.00	0.	94	11	A29	.50
1	85F	27.1	59.78	48.5	101.44	4	1070.	.06000	2.50	.00	0.	94	10	A29	.50
1	86F	14.6	35.59	63.1	133.53	4	16.	.06000	2.75	.00	0.	94	8	A29	.50
1	87CF	63.1	133.50	417.4	702.28	4	585.	.05000	5.25	.00	0.	94	0	A29	.00
1	88C	34.4	66.32	451.8	763.18	4	523.	.05000	5.50	.00	0.	94	13	A29	.50
1	89C	23.7	40.60	475.5	801.40	4	449.	.20000	4.25	.00	0.	94	17	A29	.70
1	90C	6.9	17.72	482.4	807.56	0	0.	.00000	.00	.00	0.	94	7	A29	.02
1	91C	.0	.00	482.4	807.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	807.56	4	85.	.05000	5.75	.00	0.	94	99	A29	.00
1	93C	2.8	8.68	485.2	809.19	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	809.19	4	85.	.05000	5.75	.00	0.	94	99	A29	.00
1	95C	1.9	5.89	487.1	810.20	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	810.20	4	76.	.05000	5.75	.00	0.	94	99	A29	.00
1	97C	1.2	3.72	488.3	810.75	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	810.75	4	283.	.05000	5.75	.00	0.	94	99	A29	.00
1	99C	4.3	13.33	492.6	812.62	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	100C	.0	.00	492.6	812.62	4	51.	.05000	5.75	.00	0.	94	99	A29	.00
1	101AC	492.6	812.62	2141.3	2876.37	5	36.	.05000	12.00	.00	0.	94	0	A29	.00
1	102A	16.0	49.60	2157.3	2881.27	0	0.	.00000	.00	.00	0.	94	5	A29	.01

♀
Program Package Serial Number: 2083
12/07/16 FILE: pr50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50-yr, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	24.18	200	24.70	300	25.94	400	27.38
500	29.00	600	31.11	700	33.74	800	46.08	900	87.25
1000	160.21	1050	231.04	1100	363.56	1110	408.55	1120	477.72
1130	579.77	1131	591.95	1132	603.87	1133	616.47	1134	629.69
1135	643.62	1136	658.22	1137	674.07	1138	691.35	1139	709.45
1140	728.53	1141	748.88	1142	770.18	1143	791.73	1144	813.60
1145	837.03	1146	862.89	1147	890.67	1148	919.96	1149	957.25
1150	1006.17	1151	1063.07	1152	1128.11	1153	1203.11	1154	1284.16
1155	1365.35	1156	1447.58	1157	1526.96	1158	1601.21	1159	1666.36
1160	1723.59	1161	1778.63	1162	1836.54	1163	1902.19	1164	1979.04
1165	2065.89	1166	2155.21	1167	2236.20	1168	2297.98	1169	2333.61
1170	2337.56	1171	2315.62	1172	2261.29	1173	2183.92	1174	2086.39
1175	1975.72	1176	1858.49	1177	1740.76	1178	1620.07	1179	1502.07
1180	1391.30	1181	1289.82	1182	1199.67	1183	1117.17	1184	1038.51
1185	967.06	1186	902.70	1187	844.20	1188	790.89	1189	743.11
1190	702.19	1191	668.55	1192	638.18	1193	607.14	1194	578.58
1195	552.23	1196	527.83	1197	505.01	1198	483.74	1199	464.11
1200	445.93	1201	429.10	1202	413.51	1203	398.86	1204	385.20
1205	372.69	1206	361.15	1207	350.41	1208	340.29	1209	330.81
1210	321.78	1211	313.14	1212	304.86	1213	297.00	1214	289.50
1215	282.14	1216	275.08	1217	268.35	1218	261.81	1219	255.55
1220	249.67	1221	243.95	1222	238.53	1223	233.56	1224	229.48
1225	225.85	1226	222.19	1227	218.44	1228	214.55	1229	210.52
1230	206.37	1231	202.22	1232	198.21	1233	194.35	1234	190.58
1235	186.88	1236	183.18	1237	179.50	1238	175.84	1239	172.21
1240	168.89	1241	165.84	1242	162.84	1243	160.01	1244	157.67
1245	155.34	1246	152.99	1247	150.56	1248	148.13	1249	145.79
1250	143.36	1251	140.84	1252	138.31	1253	135.81	1254	133.30
1255	130.88	1256	128.51	1257	126.17	1258	123.89	1259	121.45
1260	119.05	1261	116.73	1262	114.36	1263	112.06	1264	109.86
1265	107.66	1266	105.47	1267	103.35	1268	101.23	1269	99.20
1270	97.24	1271	95.26	1272	93.33	1273	91.49	1274	89.75
1275	88.15	1276	86.84	1277	85.71	1278	84.64	1279	83.54
1280	82.38	1281	81.15	1282	79.86	1283	78.54	1284	77.20
1285	75.85	1286	74.50	1287	73.15	1288	71.81	1289	70.49
1290	69.17	1291	67.87	1292	66.59	1293	65.32	1294	64.08
1295	62.86	1296	61.66	1297	60.48	1298	59.33	1299	58.20
1300	57.09	1310	48.27	1320	42.71	1330	38.65	1340	35.64
1350	33.62	1360	32.16	1370	31.07	1380	30.18	1390	29.33
1400	28.65	1420	27.48	1440	26.47	1460	24.22	1500	24.18

TOTAL VOLUME THIS HYDROGRAPH = 256.88(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50-yr, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	35.32	200	36.78	300	38.78	400	40.81
500	43.42	600	46.72	700	50.95	800	58.33	900	72.09
1000	93.72	1050	121.39	1100	163.99	1110	186.36	1120	220.22
1130	259.22	1131	263.79	1132	268.38	1133	273.36	1134	278.55
1135	283.86	1136	289.44	1137	295.62	1138	302.18	1139	309.16
1140	316.52	1141	324.77	1142	333.89	1143	343.69	1144	354.08
1145	366.02	1146	379.67	1147	394.91	1148	411.33	1149	435.87
1150	469.41	1151	511.24	1152	562.27	1153	620.57	1154	675.72
1155	723.20	1156	760.21	1157	786.61	1158	802.12	1159	807.56
1160	805.27	1161	795.88	1162	775.23	1163	745.55	1164	711.76
1165	675.66	1166	636.19	1167	596.66	1168	558.64	1169	518.63
1170	477.27	1171	438.80	1172	403.94	1173	372.35	1174	343.74
1175	317.14	1176	293.11	1177	270.87	1178	250.65	1179	233.10
1180	217.98	1181	205.70	1182	194.75	1183	185.33	1184	177.44
1185	170.60	1186	164.69	1187	159.71	1188	155.05	1189	150.91
1190	147.09	1191	143.48	1192	140.07	1193	136.95	1194	133.93
1195	131.07	1196	128.49	1197	126.09	1198	123.76	1199	121.54
1200	119.54	1201	117.68	1202	115.88	1203	113.86	1204	112.00
1205	110.37	1206	108.73	1207	106.94	1208	105.36	1209	103.93
1210	102.40	1211	101.01	1212	99.70	1213	98.42	1214	97.19
1215	95.88	1216	94.77	1217	93.72	1218	92.54	1219	91.51
1220	90.53	1221	89.56	1222	88.49	1223	87.40	1224	86.45
1225	85.48	1226	84.56	1227	83.77	1228	82.97	1229	82.22
1230	81.32	1231	80.48	1232	79.69	1233	78.74	1234	77.94
1235	77.23	1236	76.49	1237	75.88	1238	75.13	1239	74.37
1240	73.67	1241	73.04	1242	72.34	1243	71.72	1244	71.24
1245	70.66	1246	69.98	1247	69.30	1248	68.66	1249	68.09
1250	67.38	1251	66.80	1252	66.28	1253	65.69	1254	65.07
1255	64.58	1256	64.09	1257	63.62	1258	63.04	1259	62.51
1260	62.03	1261	61.51	1262	60.87	1263	60.36	1264	59.85
1265	59.33	1266	58.85	1267	58.38	1268	57.87	1269	57.51
1270	57.08	1271	56.67	1272	56.29	1273	55.98	1274	55.66
1275	55.31	1276	55.00	1277	54.64	1278	54.32	1279	54.08
1280	53.79	1281	53.52	1282	53.30	1283	53.02	1284	52.80
1285	52.63	1286	52.37	1287	52.09	1288	51.85	1289	51.63
1290	51.39	1291	51.15	1292	50.91	1293	50.65	1294	50.43
1295	50.24	1296	50.04	1297	49.85	1298	49.70	1299	49.55
1300	49.42	1310	48.24	1320	46.93	1330	45.41	1340	43.81
1350	42.67	1360	41.77	1370	40.95	1380	40.13	1390	38.85
1400	38.27	1420	37.27	1440	35.47	1460	35.21	1500	35.21

TOTAL VOLUME THIS HYDROGRAPH = 147.82(Ac.Ft)

Program Package Serial Number: 2083
08/19/16 FILE: PR50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.23	200	.24	300	.25	400	.26
500	.28	600	.30	700	.33	800	.52	900	1.02
1000	1.75	1050	2.72	1100	4.11	1110	5.71	1120	6.66
1130	8.30	1131	8.55	1132	8.80	1133	9.22	1134	9.65
1135	10.08	1136	10.25	1137	10.79	1138	11.14	1139	11.50
1140	11.85	1141	12.76	1142	13.30	1143	13.84	1144	14.38
1145	15.83	1146	16.91	1147	17.99	1148	18.90	1149	25.84
1150	31.90	1151	37.61	1152	43.50	1153	49.60	1154	43.50
1155	36.50	1156	29.14	1157	21.27	1158	13.30	1159	11.14
1160	9.72	1161	8.65	1162	7.78	1163	7.26	1164	6.57
1165	6.23	1166	5.88	1167	5.54	1168	5.19	1169	5.02
1170	4.68	1171	4.51	1172	4.34	1173	4.18	1174	4.01
1175	3.85	1176	3.68	1177	3.68	1178	3.35	1179	3.35
1180	3.18	1181	3.18	1182	3.02	1183	3.02	1184	2.85
1185	2.85	1186	2.69	1187	2.69	1188	2.52	1189	2.52
1190	2.52	1191	2.36	1192	2.19	1193	2.36	1194	2.19
1195	2.02	1196	2.19	1197	2.19	1198	2.02	1199	2.02
1200	2.02	1201	1.86	1202	1.86	1203	1.69	1204	1.69
1205	1.69	1206	1.69	1207	1.53	1208	1.69	1209	1.69
1210	1.53	1211	1.53	1212	1.53	1213	1.53	1214	1.36
1215	1.36	1216	1.36	1217	1.36	1218	1.20	1219	1.36
1220	1.36	1221	1.20	1222	1.20	1223	1.20	1224	1.00
1225	1.00	1226	1.20	1227	1.20	1228	1.20	1229	1.20
1230	1.00	1231	.81	1232	.81	1233	.81	1234	.81
1235	1.00	1236	1.00	1237	1.00	1238	.81	1239	.81
1240	.81	1241	.81	1242	.61	1243	.81	1244	.81
1245	.61	1246	.61	1247	.61	1248	.61	1249	.61
1250	.61	1251	.61	1252	.61	1253	.61	1254	.41
1255	.61	1256	.41	1257	.61	1258	.41	1259	.41
1260	.41	1261	.41	1262	.33	1263	.41	1264	.41
1265	.33	1266	.41	1267	.41	1268	.33	1269	.41
1270	.41	1271	.33	1272	.33	1273	.41	1274	.33
1275	.33	1276	.33	1277	.33	1278	.31	1279	.33
1280	.33	1281	.33	1282	.33	1283	.33	1284	.31
1285	.31	1286	.31	1287	.31	1288	.31	1289	.31
1290	.31	1291	.31	1292	.31	1293	.31	1294	.31
1295	.31	1296	.31	1297	.31	1298	.31	1299	.31
1300	.31	1310	.30	1320	.29	1330	.28	1340	.27
1350	.27	1360	.26	1370	.26	1380	.25	1390	.24
1400	.25	1420	.23	1440	.22	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 2.41(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: pr25 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 25-yr CLEAR

LOCATION		SUBAREA AREA(AC)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	66.40	40.9	66.40	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	2A	50.6	89.84	91.5	156.24	2	1320.	.10000	.00	.00	0.	94	11	A29	.01
1	3A	48.8	86.64	140.3	239.55	2	960.	.10000	.00	.00	0.	94	11	A29	.01
1	4A	37.8	70.86	178.1	304.41	2	1272.	.08000	.00	.00	0.	94	10	A29	.01
1	5A	46.9	79.40	225.0	376.25	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	6A	.0	.00	225.0	376.25	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	376.25	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	98.36	55.4	98.36	1	1656.	.12000	.00	.00	0.	94	11	A29	.01
1	9B	51.0	86.34	106.4	172.70	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	10AB	106.4	172.70	331.4	548.95	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	75.16	377.7	611.81	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	12A	46.7	75.81	424.4	681.85	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	13A	55.0	93.11	479.4	766.22	2	1584.	.04000	.00	.00	0.	94	12	A29	.01
1	14A	52.8	89.38	532.2	832.51	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	15A	52.6	85.39	584.8	908.56	2	1085.	.05000	.00	.00	0.	94	13	A29	.01
1	16A	23.5	41.72	608.3	929.42	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	17A	.0	.00	608.3	929.42	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	929.42	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	54.19	26.0	54.19	2	1584.	.09000	.00	.00	0.	94	8	A29	.01
1	20C	48.7	73.65	74.7	123.60	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	21AC	74.7	123.60	683.0	1033.42	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	70.05	732.7	1092.32	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	23A	.0	.00	732.7	1092.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1092.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	76.18	45.0	76.18	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	26D	31.1	50.49	76.1	126.67	2	1020.	.10000	.00	.00	0.	94	13	A29	.01
1	27D	49.3	80.03	125.4	205.60	2	1290.	.10000	.00	.00	0.	94	13	A29	.01
1	28D	47.5	71.83	172.9	274.20	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	29D	29.2	49.43	202.1	322.04	2	1232.	.10000	.00	.00	0.	94	12	A29	.01
1	30D	48.6	86.29	250.7	399.38	2	1423.	.08000	.00	.00	0.	94	11	A29	.01
1	31D	41.1	64.27	291.8	456.34	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	32AD	291.8	456.34	1024.5	1533.05	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1527.18	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1527.18	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	64.59	1065.8	1581.40	2	488.	.04000	.00	.00	0.	94	14	A29	.01
1	36A	46.4	78.55	1112.2	1628.28	2	1107.	.02000	.00	.00	0.	94	12	A29	.01
1	37A	26.0	46.16	1138.2	1636.14	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	38A	64.1	90.35	1202.3	1714.76	2	1195.	.01000	.00	.00	0.	94	17	A29	.01
1	39A	56.1	87.73	1258.4	1740.59	5	175.	.02000	11.00	.00	0.	94	14	A29	.01
1	40A	.0	.00	1258.4	1739.72	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	1739.72	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	59.16	37.8	59.16	4	1519.	.03000	2.50	.00	0.	94	14	A29	.02
1	43F	59.1	83.30	59.1	83.30	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	44F	52.1	88.20	111.2	171.50	4	161.	.06000	3.00	.00	0.	94	12	A29	.01
1	45EF	111.2	171.25	149.0	228.06	4	1818.	.06000	3.50	.00	0.	94	0	A29	.00
1	46AE	149.0	226.46	1407.4	1908.92	5	625.	.02000	12.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	1908.81	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	1908.81	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	1908.81	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	24.05	1418.2	1912.63	5	618.	.02000	12.00	.00	0.	94	7	A29	.01
1	51A	13.3	32.14	1431.5	1910.63	5	728.	.02000	12.00	.00	0.	94	6	A29	.01
1	52A	11.9	28.76	1443.4	1913.40	5	795.	.02000	12.00	.00	0.	94	6	A29	.01
1	53A	15.4	34.29	1458.8	1912.77	5	823.	.02000	12.00	.00	0.	94	7	A29	.01
1	54A	9.7	23.44	1468.5	1910.39	5	443.	.02000	12.00	.00	0.	94	6	A29	.01
1	55B	56.4	106.51	56.4	106.51	4	1197.	.05000	2.75	.00	0.	94	10	A29	.15
1	56AB	56.4	105.16	1524.9	1930.57	4	1344.	.05000	7.75	.00	0.	94	0	A29	.00
1	57A	20.8	43.37	1545.7	1930.58	4	449.	.05000	7.75	.00	0.	94	8	A29	.02
1	58A	7.0	18.85	1552.7	1931.49	4	680.	.05000	7.75	.00	0.	94	5	A29	.01
1	59A	9.6	25.85	1562.3	1928.46	4	1215.	.05000	7.75	.00	0.	94	5	A29	.01
1	60A	4.2	8.75	1566.5	1923.70	4	567.	.05000	7.75	.00	0.	94	8	A29	.01
1	61A	44.3	74.99	1610.8	1935.69	4	803.	.05000	7.75	.00	0.	94	12	A29	.01
1	62A	37.9	67.29	1648.7	1940.77	4	642.	.05000	7.75	.00	0.	94	11	A29	.01
1	63A	.0	.00	1648.7	1939.48	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								pr25							
1	64A	.0	.00	1648.7	1939.48	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	66.68	40.4	66.68	4	664.	.06000	2.25	.00	0.	94	14	A29	.75
1	66C	39.8	47.28	80.2	113.77	4	1491.	.06000	2.75	.00	0.	94	26	A29	.50
1	67C	51.0	73.56	131.2	186.22	0	0.	.00000	.00	.00	0.	94	18	A29	.60
1	68C	34.8	42.55	166.0	228.73	4	880.	.06000	3.50	.00	0.	94	24	A29	.40
1	69C	13.1	25.19	179.1	251.32	4	832.	.06000	3.50	.00	0.	94	10	A29	.50
1	70C	63.7	79.44	242.8	329.39	4	566.	.06000	4.00	.00	0.	94	25	A29	.75
1	71C	10.0	19.23	252.8	344.93	4	27.	.06000	4.00	.00	0.	94	10	A29	.50
1	72C	.0	.00	252.8	344.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	15.80	7.0	15.80	4	1814.	.06000	2.00	.00	0.	94	7	A29	.40
1	74D	3.4	6.01	10.4	20.76	4	2106.	.02000	2.00	.00	0.	94	12	A29	.70
1	75D	23.6	35.01	34.0	52.00	4	1753.	.02000	2.50	.00	0.	94	17	A29	.60
1	76D	29.3	45.77	63.3	91.63	4	255.	.02000	3.00	.00	0.	94	16	A29	.86
1	77D	.0	.00	63.3	91.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	23.24	15.8	23.24	4	670.	.05000	2.00	.00	0.	94	17	A29	.50
1	79E	17.4	27.39	33.2	50.41	4	1024.	.05000	2.00	.00	0.	94	14	A29	.10
1	80E	5.0	8.84	38.2	58.70	4	81.	.05000	2.25	.00	0.	94	12	A29	.70
1	81DE	38.2	58.64	101.5	148.29	4	404.	.05000	3.00	.00	0.	94	0	A29	.00
1	82CD	101.5	148.19	354.3	492.29	4	947.	.05000	4.75	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	491.34	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	37.38	21.4	37.38	4	1656.	.06000	2.00	.00	0.	94	12	A29	.50
1	85F	27.1	49.51	48.5	85.02	4	1070.	.06000	2.50	.00	0.	94	11	A29	.50
1	86F	14.6	29.39	63.1	111.99	4	16.	.06000	2.75	.00	0.	94	9	A29	.50
1	87CF	63.1	111.94	417.4	593.68	4	585.	.05000	5.00	.00	0.	94	0	A29	.00
1	88C	34.4	54.04	451.8	644.65	4	523.	.05000	5.25	.00	0.	94	15	A29	.50
1	89C	23.7	33.61	475.5	675.86	4	449.	.20000	4.00	.00	0.	94	19	A29	.70
1	90C	6.9	14.39	482.4	681.98	0	0.	.00000	.00	.00	0.	94	8	A29	.02
1	91C	.0	.00	482.4	681.98	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	681.98	4	85.	.05000	5.25	.00	0.	94	99	A29	.00
1	93C	2.8	7.54	485.2	683.31	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	683.31	4	85.	.05000	5.25	.00	0.	94	99	A29	.00
1	95C	1.9	5.12	487.1	684.28	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	684.28	4	76.	.05000	5.25	.00	0.	94	99	A29	.00
1	97C	1.2	3.23	488.3	684.87	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	684.87	4	283.	.05000	5.25	.00	0.	94	99	A29	.00
1	99C	4.3	11.58	492.6	686.92	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	100C	.0	.00	492.6	686.92	4	51.	.05000	5.25	.00	0.	94	99	A29	.00
1	101AC	492.6	686.85	2141.3	2363.71	5	36.	.05000	11.00	.00	0.	94	0	A29	.00
1	102A	16.0	43.08	2157.3	2367.38	0	0.	.00000	.00	.00	0.	94	5	A29	.01

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Program Package Serial Number: 2083
12/07/16 FILE: pr25 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
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LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE:
Northlake Phase 1, Prop. 25-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	21.23	200	21.74	300	22.84	400	24.04
500	25.47	600	27.31	700	29.63	800	32.67	900	47.06
1000	105.37	1050	172.95	1100	286.62	1110	325.96	1120	382.87
1130	467.91	1131	478.24	1132	488.38	1133	498.95	1134	509.83
1135	521.09	1136	532.79	1137	545.36	1138	559.17	1139	574.06
1140	589.98	1141	607.05	1142	624.95	1143	643.31	1144	661.85
1145	681.65	1146	703.50	1147	727.04	1148	751.82	1149	783.08
1150	823.72	1151	871.20	1152	925.57	1153	987.30	1154	1051.45
1155	1114.32	1156	1176.71	1157	1237.67	1158	1296.29	1159	1351.05
1160	1399.28	1161	1441.69	1162	1482.72	1163	1525.44	1164	1572.94
1165	1627.43	1166	1688.82	1167	1751.57	1168	1811.29	1169	1864.63
1170	1905.62	1171	1931.51	1172	1939.48	1173	1926.60	1174	1885.82
1175	1816.75	1176	1726.83	1177	1622.55	1178	1515.28	1179	1409.92
1180	1309.04	1181	1213.95	1182	1124.85	1183	1042.41	1184	967.35
1185	899.89	1186	839.13	1187	783.48	1188	732.50	1189	685.71
1190	642.88	1191	605.13	1192	570.63	1193	540.46	1194	513.93
1195	489.35	1196	467.43	1197	447.21	1198	427.24	1199	407.95
1200	389.86	1201	373.47	1202	358.36	1203	344.07	1204	330.64
1205	318.57	1206	307.35	1207	296.74	1208	287.00	1209	278.63
1210	270.48	1211	262.56	1212	254.80	1213	247.31	1214	240.20
1215	233.31	1216	226.68	1217	220.29	1218	214.04	1219	208.10
1220	202.39	1221	196.82	1222	191.40	1223	186.22	1224	181.30
1225	176.69	1226	172.73	1227	169.39	1228	166.15	1229	163.00
1230	159.59	1231	156.01	1232	152.48	1233	149.00	1234	145.58
1235	142.22	1236	138.92	1237	135.59	1238	132.16	1239	128.75
1240	125.49	1241	122.47	1242	119.51	1243	116.52	1244	113.65
1245	110.85	1246	108.14	1247	105.66	1248	103.72	1249	101.90
1250	100.19	1251	98.43	1252	96.61	1253	94.73	1254	92.81
1255	90.88	1256	88.96	1257	87.06	1258	85.17	1259	83.30
1260	81.44	1261	79.60	1262	77.77	1263	75.96	1264	74.19
1265	72.44	1266	70.75	1267	69.09	1268	67.48	1269	65.91
1270	64.40	1271	62.92	1272	61.47	1273	60.08	1274	58.73
1275	57.41	1276	56.13	1277	54.89	1278	53.70	1279	52.56
1280	51.47	1281	50.43	1282	49.46	1283	48.55	1284	47.74
1285	47.07	1286	46.55	1287	46.06	1288	45.57	1289	45.05
1290	44.50	1291	43.93	1292	43.36	1293	42.79	1294	42.23
1295	41.68	1296	41.15	1297	40.63	1298	40.12	1299	39.62
1300	39.14	1310	35.36	1320	32.94	1330	31.29	1340	29.95
1350	28.91	1360	28.01	1370	27.22	1380	26.48	1390	25.76
1400	25.16	1420	24.12	1440	23.13	1460	21.23	1500	21.23

TOTAL VOLUME THIS HYDROGRAPH = 205.66(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr25 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE:
Northlake Phase 1, Prop. 25-yr CLEAR, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	31.01	200	32.29	300	34.04	400	35.83
500	38.12	600	41.01	700	44.72	800	49.58	900	58.77
1000	78.46	1050	102.94	1100	140.15	1110	158.36	1120	186.74
1130	220.55	1131	224.42	1132	228.34	1133	232.54	1134	236.96
1135	241.61	1136	246.41	1137	251.56	1138	257.14	1139	263.02
1140	269.16	1141	275.95	1142	283.49	1143	291.60	1144	300.25
1145	310.08	1146	321.30	1147	333.81	1148	347.44	1149	367.19
1150	393.97	1151	427.35	1152	468.26	1153	515.23	1154	560.84
1155	601.37	1156	634.88	1157	658.93	1158	674.26	1159	681.98
1160	681.87	1161	675.36	1162	662.68	1163	644.65	1164	621.59
1165	594.68	1166	565.88	1167	536.94	1168	505.14	1169	472.73
1170	441.00	1171	408.60	1172	376.63	1173	347.91	1174	322.63
1175	299.78	1176	278.93	1177	259.47	1178	241.15	1179	223.79
1180	208.05	1181	193.77	1182	181.74	1183	171.49	1184	162.57
1185	154.89	1186	148.38	1187	142.62	1188	137.70	1189	133.39
1190	129.61	1191	126.12	1192	122.77	1193	119.77	1194	116.97
1195	114.23	1196	111.80	1197	109.49	1198	107.29	1199	105.27
1200	103.32	1201	101.51	1202	99.87	1203	98.15	1204	96.46
1205	94.87	1206	93.33	1207	91.84	1208	90.40	1209	89.01
1210	87.65	1211	86.45	1212	85.15	1213	84.01	1214	82.89
1215	81.71	1216	80.62	1217	79.57	1218	78.52	1219	77.61
1220	76.70	1221	75.69	1222	74.80	1223	73.90	1224	72.87
1225	71.90	1226	71.11	1227	70.28	1228	69.46	1229	68.72
1230	67.88	1231	67.10	1232	66.32	1233	65.57	1234	64.80
1235	64.02	1236	63.33	1237	62.73	1238	62.05	1239	61.38
1240	60.80	1241	60.22	1242	59.55	1243	58.96	1244	58.49
1245	57.95	1246	57.43	1247	56.91	1248	56.38	1249	55.93
1250	55.45	1251	54.98	1252	54.55	1253	54.16	1254	53.79
1255	53.42	1256	53.05	1257	52.76	1258	52.50	1259	52.17
1260	51.88	1261	51.63	1262	51.32	1263	51.02	1264	50.74
1265	50.43	1266	50.19	1267	49.96	1268	49.67	1269	49.45
1270	49.23	1271	49.00	1272	48.77	1273	48.58	1274	48.41
1275	48.22	1276	48.00	1277	47.79	1278	47.60	1279	47.40
1280	47.22	1281	47.04	1282	46.84	1283	46.66	1284	46.50
1285	46.28	1286	46.08	1287	45.91	1288	45.69	1289	45.46
1290	45.26	1291	45.08	1292	44.87	1293	44.66	1294	44.47
1295	44.28	1296	44.11	1297	43.97	1298	43.80	1299	43.65
1300	43.53	1310	42.43	1320	41.30	1330	40.00	1340	38.58
1350	37.56	1360	36.74	1370	36.02	1380	35.31	1390	34.22
1400	33.66	1420	32.74	1440	31.18	1460	30.92	1500	30.92

TOTAL VOLUME THIS HYDROGRAPH = 127.35(Ac.Ft)

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Program Package Serial Number: 2083
08/21/16 FILE: PR25 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE:
Northlake Phase 1, Prop. 25-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.20	200	.21	300	.22	400	.23
500	.24	600	.26	700	.29	800	.32	900	.54
1000	1.26	1050	2.11	1100	3.33	1110	4.70	1120	5.53
1130	6.97	1131	7.18	1132	7.39	1133	7.76	1134	8.12
1135	8.49	1136	8.65	1137	9.12	1138	9.43	1139	9.74
1140	10.05	1141	10.83	1142	11.30	1143	11.77	1144	12.24
1145	13.51	1146	14.46	1147	15.42	1148	16.21	1149	22.27
1150	27.57	1151	32.58	1152	37.75	1153	43.08	1154	37.75
1155	31.61	1156	25.16	1157	18.27	1158	11.30	1159	9.43
1160	8.18	1161	7.27	1162	6.52	1163	6.06	1164	5.46
1165	5.15	1166	4.85	1167	4.55	1168	4.26	1169	4.12
1170	3.82	1171	3.68	1172	3.53	1173	3.39	1174	3.24
1175	3.10	1176	2.95	1177	2.95	1178	2.66	1179	2.66
1180	2.52	1181	2.52	1182	2.37	1183	2.37	1184	2.23
1185	2.23	1186	2.08	1187	2.08	1188	1.93	1189	1.93
1190	1.93	1191	1.79	1192	1.64	1193	1.79	1194	1.64
1195	1.50	1196	1.64	1197	1.64	1198	1.50	1199	1.50
1200	1.50	1201	1.35	1202	1.35	1203	1.21	1204	1.21
1205	1.21	1206	1.21	1207	1.04	1208	1.21	1209	1.21
1210	1.04	1211	1.04	1212	1.04	1213	1.04	1214	.87
1215	.87	1216	.87	1217	.87	1218	.70	1219	.87
1220	.87	1221	.70	1222	.70	1223	.70	1224	.52
1225	.52	1226	.70	1227	.70	1228	.70	1229	.70
1230	.52	1231	.35	1232	.35	1233	.35	1234	.35
1235	.52	1236	.52	1237	.52	1238	.35	1239	.35
1240	.35	1241	.35	1242	.33	1243	.35	1244	.35
1245	.33	1246	.33	1247	.33	1248	.33	1249	.33
1250	.33	1251	.33	1252	.33	1253	.33	1254	.31
1255	.33	1256	.31	1257	.33	1258	.31	1259	.31
1260	.31	1261	.31	1262	.29	1263	.31	1264	.31
1265	.29	1266	.31	1267	.31	1268	.29	1269	.31
1270	.31	1271	.29	1272	.29	1273	.31	1274	.29
1275	.29	1276	.29	1277	.29	1278	.27	1279	.29
1280	.29	1281	.29	1282	.29	1283	.29	1284	.27
1285	.27	1286	.27	1287	.27	1288	.27	1289	.27
1290	.27	1291	.27	1292	.27	1293	.27	1294	.27
1295	.27	1296	.27	1297	.27	1298	.27	1299	.27
1300	.27	1310	.26	1320	.25	1330	.25	1340	.24
1350	.24	1360	.23	1370	.23	1380	.22	1390	.21
1400	.22	1420	.20	1440	.20	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 1.92(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: pr10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 10-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	46.88	40.9	46.88	0	0.	.00000	.00	.00	0.	94	16	A29	.01
1	2A	50.6	64.78	91.5	111.66	2	1320.	.10000	.00	.00	0.	94	13	A29	.01
1	3A	48.8	62.47	140.3	172.11	2	960.	.10000	.00	.00	0.	94	13	A29	.01
1	4A	37.8	50.53	178.1	219.27	2	1272.	.08000	.00	.00	0.	94	12	A29	.01
1	5A	46.9	57.77	225.0	272.05	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	6A	.0	.00	225.0	272.05	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	272.05	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	74.05	55.4	74.05	1	1656.	.12000	.00	.00	0.	94	12	A29	.01
1	9B	51.0	62.82	106.4	128.35	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	10AB	106.4	128.35	331.4	400.40	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	55.10	377.7	447.24	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	12A	46.7	55.58	424.4	498.55	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	13A	55.0	67.75	479.4	559.96	2	1584.	.04000	.00	.00	0.	94	14	A29	.01
1	14A	52.8	65.04	532.2	609.16	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	15A	52.6	60.30	584.8	662.04	2	1085.	.05000	.00	.00	0.	94	16	A29	.01
1	16A	23.5	31.41	608.3	677.46	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	17A	.0	.00	608.3	677.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	677.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	38.57	26.0	38.57	2	1584.	.09000	.00	.00	0.	94	10	A29	.01
1	20C	48.7	52.27	74.7	88.19	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	21AC	74.7	88.19	683.0	756.11	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	49.00	732.7	797.35	0	0.	.00000	.00	.00	0.	94	21	A29	.01
1	23A	.0	.00	732.7	797.35	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	797.35	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	53.56	45.0	53.56	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	26D	31.1	37.01	76.1	90.57	2	1020.	.10000	.00	.00	0.	94	15	A29	.01
1	27D	49.3	56.51	125.4	146.12	2	1290.	.10000	.00	.00	0.	94	16	A29	.01
1	28D	47.5	50.98	172.9	195.57	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	29D	29.2	35.97	202.1	230.36	2	1232.	.10000	.00	.00	0.	94	14	A29	.01
1	30D	48.6	64.96	250.7	287.76	2	1423.	.08000	.00	.00	0.	94	12	A29	.01
1	31D	41.1	45.52	291.8	329.13	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	32AD	291.8	329.13	1024.5	1111.48	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1107.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1107.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	45.75	1065.8	1147.29	2	488.	.04000	.00	.00	0.	94	17	A29	.01
1	36A	46.4	55.22	1112.2	1187.23	2	1107.	.02000	.00	.00	0.	94	15	A29	.01
1	37A	26.0	34.75	1138.2	1190.76	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	38A	64.1	65.05	1202.3	1247.03	2	1195.	.01000	.00	.00	0.	94	20	A29	.01
1	39A	56.1	64.31	1258.4	1265.77	4	175.	.02000	7.75	.00	0.	94	16	A29	.01
1	40A	.0	.00	1258.4	1265.09	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	1265.09	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	41.92	37.8	41.92	4	1519.	.03000	2.00	.00	0.	94	17	A29	.02
1	43F	59.1	58.27	59.1	58.27	0	0.	.00000	.00	.00	0.	94	21	A29	.01
1	44F	52.1	62.01	111.2	120.05	4	161.	.06000	2.75	.00	0.	94	15	A29	.01
1	45EF	111.2	119.95	149.0	159.20	4	1818.	.06000	3.00	.00	0.	94	0	A29	.00
1	46AE	149.0	158.45	1407.4	1393.18	5	625.	.02000	11.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	1392.75	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	1392.75	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	1392.75	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	16.84	1418.2	1395.33	5	618.	.02000	11.00	.00	0.	94	9	A29	.01
1	51A	13.3	21.98	1431.5	1394.66	5	728.	.02000	11.00	.00	0.	94	8	A29	.01
1	52A	11.9	21.05	1443.4	1396.14	5	795.	.02000	11.00	.00	0.	94	7	A29	.01
1	53A	15.4	24.01	1458.8	1396.15	5	823.	.02000	11.00	.00	0.	94	9	A29	.01
1	54A	9.7	17.15	1468.5	1394.50	5	443.	.02000	11.00	.00	0.	94	7	A29	.01
1	55B	56.4	84.63	56.4	84.63	4	1197.	.05000	2.50	.00	0.	94	10	A29	.15
1	56AB	56.4	83.51	1524.9	1408.85	4	1344.	.05000	7.00	.00	0.	94	0	A29	.00
1	57A	20.8	30.88	1545.7	1409.28	4	449.	.05000	7.00	.00	0.	94	10	A29	.02
1	58A	7.0	13.46	1552.7	1408.59	4	680.	.05000	7.00	.00	0.	94	6	A29	.01
1	59A	9.6	20.62	1562.3	1407.76	4	1215.	.05000	7.00	.00	0.	94	5	A29	.01
1	60A	4.2	6.55	1566.5	1405.39	4	567.	.05000	7.00	.00	0.	94	9	A29	.01
1	61A	44.3	52.72	1610.8	1413.37	4	803.	.05000	7.00	.00	0.	94	15	A29	.01
1	62A	37.9	48.52	1648.7	1417.41	4	642.	.05000	7.00	.00	0.	94	13	A29	.01
1	63A	.0	.00	1648.7	1416.34	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PR10							
1	64A	.0	.00	1648.7	1416.34	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	50.48	40.4	50.48	4	664.	.06000	2.00	.00	0.	94	16	A29	.75
1	66C	39.8	34.96	80.2	85.22	4	1491.	.06000	2.50	.00	0.	94	30	A29	.50
1	67C	51.0	53.39	131.2	138.20	0	0.	.00000	.00	.00	0.	94	22	A29	.60
1	68C	34.8	30.61	166.0	168.79	4	880.	.06000	3.00	.00	0.	94	29	A29	.40
1	69C	13.1	18.34	179.1	185.11	4	832.	.06000	3.25	.00	0.	94	12	A29	.50
1	70C	63.7	59.46	242.8	244.18	4	566.	.06000	3.50	.00	0.	94	29	A29	.75
1	71C	10.0	14.00	252.8	256.38	4	27.	.06000	3.50	.00	0.	94	12	A29	.50
1	72C	.0	.00	252.8	256.37	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	11.23	7.0	11.23	4	1814.	.06000	2.00	.00	0.	94	9	A29	.40
1	74D	3.4	4.51	10.4	15.10	4	2106.	.02000	2.00	.00	0.	94	14	A29	.70
1	75D	23.6	25.97	34.0	38.61	4	1753.	.02000	2.25	.00	0.	94	20	A29	.60
1	76D	29.3	34.13	63.3	68.88	4	255.	.02000	2.75	.00	0.	94	19	A29	.86
1	77D	.0	.00	63.3	68.79	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	17.16	15.8	17.16	4	670.	.05000	2.00	.00	0.	94	20	A29	.50
1	79E	17.4	19.49	33.2	36.55	4	1024.	.05000	2.00	.00	0.	94	17	A29	.10
1	80E	5.0	6.63	38.2	42.89	4	81.	.05000	2.00	.00	0.	94	14	A29	.70
1	81DE	38.2	42.89	101.5	109.73	4	404.	.05000	2.75	.00	0.	94	0	A29	.00
1	82CD	101.5	109.73	354.3	365.92	4	947.	.05000	4.25	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	365.18	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	27.78	21.4	27.78	4	1656.	.06000	2.00	.00	0.	94	14	A29	.50
1	85F	27.1	36.46	48.5	63.20	4	1070.	.06000	2.25	.00	0.	94	13	A29	.50
1	86F	14.6	21.39	63.1	82.98	4	16.	.06000	2.50	.00	0.	94	11	A29	.50
1	87CF	63.1	82.94	417.4	442.41	4	585.	.05000	4.50	.00	0.	94	0	A29	.00
1	88C	34.4	40.48	451.8	480.79	4	523.	.05000	4.75	.00	0.	94	17	A29	.50
1	89C	23.7	25.16	475.5	504.46	4	449.	.20000	3.75	.00	0.	94	22	A29	.70
1	90C	6.9	10.25	482.4	510.17	0	0.	.00000	.00	.00	0.	94	10	A29	.02
1	91C	.0	.00	482.4	510.17	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	510.17	4	85.	.05000	4.75	.00	0.	94	99	A29	.00
1	93C	2.8	6.02	485.2	510.95	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	510.95	4	85.	.05000	4.75	.00	0.	94	99	A29	.00
1	95C	1.9	4.08	487.1	511.60	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	511.60	4	76.	.05000	4.75	.00	0.	94	99	A29	.00
1	97C	1.2	2.58	488.3	512.00	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	512.00	4	283.	.05000	4.75	.00	0.	94	99	A29	.00
1	99C	4.3	8.27	492.6	513.51	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	100C	.0	.00	492.6	513.51	4	51.	.05000	4.75	.00	0.	94	99	A29	.00
1	101AC	492.6	513.47	2141.3	1740.60	4	36.	.05000	7.50	.00	0.	94	0	A29	.00
1	102A	16.0	30.77	2157.3	1742.88	0	0.	.00000	.00	.00	0.	94	6	A29	.01

♀
Program Package Serial Number: 2083
12/07/16 FILE: pr10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F06

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE:
Northlake Phase 1, Prop. 10-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	17.26	200	17.63	300	18.50	400	19.53
500	20.67	600	22.17	700	24.04	800	26.50	900	29.98
1000	43.18	1050	84.37	1100	182.83	1110	213.69	1120	256.39
1130	317.23	1131	324.26	1132	331.47	1133	339.27	1134	347.35
1135	355.71	1136	364.39	1137	373.49	1138	383.06	1139	392.99
1140	403.29	1141	414.30	1142	426.29	1143	439.00	1144	452.34
1145	466.74	1146	482.51	1147	499.42	1148	517.47	1149	540.12
1150	569.31	1151	603.33	1152	641.68	1153	684.79	1154	729.24
1155	772.61	1156	815.48	1157	857.04	1158	896.91	1159	935.12
1160	972.15	1161	1008.25	1162	1041.01	1163	1070.72	1164	1098.93
1165	1126.38	1166	1156.35	1167	1193.03	1168	1235.14	1169	1279.00
1170	1321.70	1171	1358.54	1172	1387.90	1173	1407.90	1174	1416.34
1175	1411.59	1176	1392.75	1177	1359.31	1178	1311.15	1179	1252.55
1180	1188.45	1181	1120.48	1182	1051.22	1183	982.22	1184	915.57
1185	852.85	1186	794.61	1187	740.58	1188	690.16	1189	643.02
1190	599.20	1191	559.19	1192	522.95	1193	490.44	1194	462.22
1195	436.74	1196	413.78	1197	392.38	1198	371.17	1199	351.31
1200	333.37	1201	317.11	1202	301.12	1203	286.14	1204	272.13
1205	259.28	1206	247.82	1207	236.88	1208	226.56	1209	216.88
1210	208.03	1211	199.89	1212	192.24	1213	185.19	1214	179.31
1215	173.93	1216	168.74	1217	163.56	1218	158.34	1219	153.11
1220	147.93	1221	142.83	1222	137.85	1223	133.01	1224	128.33
1225	123.80	1226	119.44	1227	115.25	1228	111.23	1229	107.37
1230	103.67	1231	100.13	1232	96.78	1233	93.62	1234	90.70
1235	88.07	1236	85.76	1237	83.95	1238	82.37	1239	80.79
1240	79.13	1241	77.36	1242	75.50	1243	73.61	1244	71.73
1245	69.86	1246	68.01	1247	66.21	1248	64.43	1249	62.71
1250	61.03	1251	59.39	1252	57.80	1253	56.26	1254	54.77
1255	53.34	1256	51.97	1257	50.65	1258	49.39	1259	48.19
1260	47.06	1261	45.99	1262	45.00	1263	44.09	1264	43.29
1265	42.60	1266	41.97	1267	41.39	1268	40.82	1269	40.25
1270	39.69	1271	39.13	1272	38.59	1273	38.05	1274	37.53
1275	37.03	1276	36.54	1277	36.06	1278	35.61	1279	35.17
1280	34.75	1281	34.35	1282	33.96	1283	33.57	1284	33.21
1285	32.86	1286	32.53	1287	32.20	1288	31.88	1289	31.59
1290	31.30	1291	31.03	1292	30.76	1293	30.51	1294	30.27
1295	30.06	1296	29.90	1297	29.77	1298	29.63	1299	29.49
1300	29.34	1310	27.85	1320	26.63	1330	25.56	1340	24.60
1350	23.79	1360	23.04	1370	22.39	1380	21.77	1390	21.17
1400	20.66	1420	19.78	1440	18.99	1460	17.26	1500	17.26

TOTAL VOLUME THIS HYDROGRAPH = 146.52(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE:
Northlake Phase 1, Prop. 10-yr CLEAR, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	25.22	200	26.25	300	27.68	400	29.13
500	30.99	600	33.35	700	36.36	800	40.30	900	46.10
1000	57.13	1050	77.65	1100	108.48	1110	121.15	1120	142.20
1130	168.85	1131	171.89	1132	174.99	1133	178.23	1134	181.60
1135	185.11	1136	188.72	1137	192.57	1138	196.66	1139	200.95
1140	205.54	1141	210.68	1142	216.33	1143	222.31	1144	228.62
1145	235.78	1146	243.88	1147	252.78	1148	262.45	1149	276.18
1150	294.61	1151	317.31	1152	345.09	1153	377.26	1154	409.10
1155	438.13	1156	463.34	1157	483.17	1158	497.58	1159	506.12
1160	510.17	1161	509.86	1162	505.91	1163	497.99	1164	487.49
1165	474.09	1166	458.07	1167	439.41	1168	420.19	1169	401.09
1170	381.71	1171	361.50	1172	341.10	1173	320.59	1174	299.70
1175	279.12	1176	260.30	1177	243.45	1178	227.80	1179	213.75
1180	200.74	1181	188.32	1182	176.59	1183	165.25	1184	154.48
1185	144.40	1186	135.56	1187	127.84	1188	121.03	1189	115.27
1190	110.23	1191	105.83	1192	102.01	1193	98.70	1194	95.76
1195	93.02	1196	90.58	1197	88.29	1198	86.15	1199	84.12
1200	82.26	1201	80.53	1202	78.86	1203	77.18	1204	75.68
1205	74.26	1206	72.87	1207	71.44	1208	70.06	1209	68.81
1210	67.57	1211	66.36	1212	65.18	1213	64.09	1214	63.01
1215	61.95	1216	61.00	1217	60.11	1218	59.19	1219	58.35
1220	57.59	1221	56.85	1222	56.17	1223	55.48	1224	54.82
1225	54.20	1226	53.62	1227	53.07	1228	52.56	1229	52.09
1230	51.63	1231	51.17	1232	50.76	1233	50.35	1234	49.94
1235	49.55	1236	49.20	1237	48.87	1238	48.51	1239	48.18
1240	47.89	1241	47.58	1242	47.25	1243	46.94	1244	46.65
1245	46.36	1246	46.09	1247	45.82	1248	45.55	1249	45.29
1250	45.01	1251	44.73	1252	44.47	1253	44.23	1254	43.97
1255	43.74	1256	43.51	1257	43.28	1258	43.04	1259	42.78
1260	42.59	1261	42.37	1262	42.12	1263	41.90	1264	41.70
1265	41.46	1266	41.23	1267	41.02	1268	40.80	1269	40.61
1270	40.43	1271	40.23	1272	40.04	1273	39.86	1274	39.71
1275	39.53	1276	39.36	1277	39.20	1278	39.02	1279	38.87
1280	38.72	1281	38.56	1282	38.39	1283	38.24	1284	38.10
1285	37.93	1286	37.76	1287	37.60	1288	37.43	1289	37.27
1290	37.12	1291	36.93	1292	36.76	1293	36.62	1294	36.48
1295	36.33	1296	36.16	1297	36.01	1298	35.88	1299	35.77
1300	35.67	1310	34.69	1320	33.74	1330	32.70	1340	31.56
1350	30.68	1360	30.00	1370	29.40	1380	28.82	1390	27.99
1400	27.46	1420	26.67	1440	25.46	1460	25.14	1500	25.14

TOTAL VOLUME THIS HYDROGRAPH = 101.08(Ac.Ft)

Program Package Serial Number: 2083

08/19/16 FILE: PR10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE:

Northlake Phase 1, Prop. 10-yr CLEAR, NATURAL HYD.

HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.16	200	.17	300	.18	400	.19
500	.20	600	.21	700	.23	800	.26	900	.30
1000	.49	1050	1.29	1100	2.28	1110	3.39	1120	4.04
1130	5.19	1131	5.33	1132	5.48	1133	5.72	1134	5.97
1135	6.22	1136	6.46	1137	6.77	1138	7.08	1139	7.28
1140	7.49	1141	8.00	1142	8.52	1143	8.84	1144	9.16
1145	10.00	1146	10.96	1147	11.59	1148	12.12	1149	16.21
1150	20.30	1151	23.78	1152	27.26	1153	30.77	1154	30.77
1155	26.61	1156	22.15	1157	17.60	1158	12.87	1159	8.10
1160	6.77	1161	5.85	1162	5.13	1163	4.72	1164	4.22
1165	3.93	1166	3.63	1167	3.33	1168	3.24	1169	2.94
1170	2.84	1171	2.64	1172	2.45	1173	2.45	1174	2.25
1175	2.15	1176	2.05	1177	1.96	1178	1.86	1179	1.76
1180	1.66	1181	1.66	1182	1.56	1183	1.46	1184	1.46
1185	1.36	1186	1.36	1187	1.27	1188	1.17	1189	1.17
1190	1.17	1191	1.05	1192	.93	1193	.93	1194	.93
1195	.81	1196	.81	1197	.81	1198	.81	1199	.70
1200	.70	1201	.70	1202	.58	1203	.46	1204	.46
1205	.46	1206	.46	1207	.35	1208	.35	1209	.46
1210	.35	1211	.35	1212	.33	1213	.35	1214	.33
1215	.32	1216	.33	1217	.32	1218	.32	1219	.32
1220	.32	1221	.32	1222	.31	1223	.31	1224	.31
1225	.30	1226	.31	1227	.31	1228	.31	1229	.31
1230	.30	1231	.30	1232	.28	1233	.28	1234	.28
1235	.28	1236	.30	1237	.30	1238	.28	1239	.28
1240	.28	1241	.28	1242	.27	1243	.27	1244	.28
1245	.27	1246	.27	1247	.26	1248	.27	1249	.27
1250	.26	1251	.27	1252	.26	1253	.27	1254	.26
1255	.26	1256	.26	1257	.26	1258	.26	1259	.25
1260	.26	1261	.25	1262	.25	1263	.25	1264	.25
1265	.25	1266	.25	1267	.25	1268	.25	1269	.25
1270	.25	1271	.25	1272	.23	1273	.25	1274	.25
1275	.23	1276	.23	1277	.23	1278	.23	1279	.23
1280	.23	1281	.23	1282	.23	1283	.23	1284	.23
1285	.22	1286	.22	1287	.22	1288	.22	1289	.22
1290	.22	1291	.22	1292	.22	1293	.22	1294	.22
1295	.22	1296	.22	1297	.22	1298	.22	1299	.22
1300	.22	1310	.21	1320	.21	1330	.20	1340	.19
1350	.19	1360	.19	1370	.19	1380	.18	1390	.17
1400	.18	1420	.17	1440	.16	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 1.36(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: pr5 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 5-yr CLEAR

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	33.42	40.9	33.42	0	0.	.00000	.00	.00	0.	94	19	A29	.01
1	2A	50.6	45.64	91.5	79.05	2	1320.	.10000	.00	.00	0.	94	16	A29	.01
1	3A	48.8	44.01	140.3	121.64	2	960.	.10000	.00	.00	0.	94	16	A29	.01
1	4A	37.8	36.73	178.1	156.34	2	1272.	.08000	.00	.00	0.	94	14	A29	.01
1	5A	46.9	40.82	225.0	193.92	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	6A	.0	.00	225.0	193.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	193.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	51.95	55.4	51.95	1	1656.	.12000	.00	.00	0.	94	15	A29	.01
1	9B	51.0	44.38	106.4	90.54	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	10AB	106.4	90.54	331.4	284.46	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	38.99	377.7	318.45	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	12A	46.7	39.33	424.4	354.44	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	13A	55.0	47.87	479.4	398.87	2	1584.	.04000	.00	.00	0.	94	17	A29	.01
1	14A	52.8	45.95	532.2	433.88	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	15A	52.6	42.97	584.8	472.76	2	1085.	.05000	.00	.00	0.	94	19	A29	.01
1	16A	23.5	22.04	608.3	485.95	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	17A	.0	.00	608.3	485.95	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	485.95	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	28.87	26.0	28.87	2	1584.	.09000	.00	.00	0.	94	11	A29	.01
1	20C	48.7	36.49	74.7	63.70	0	0.	.00000	.00	.00	0.	94	22	A29	.01
1	21AC	74.7	63.70	683.0	541.26	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	35.40	732.7	571.36	0	0.	.00000	.00	.00	0.	94	24	A29	.01
1	23A	.0	.00	732.7	571.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	571.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	39.16	45.0	39.16	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	26D	31.1	26.19	76.1	65.35	2	1020.	.10000	.00	.00	0.	94	18	A29	.01
1	27D	49.3	41.52	125.4	106.40	2	1290.	.10000	.00	.00	0.	94	18	A29	.01
1	28D	47.5	35.59	172.9	141.10	0	0.	.00000	.00	.00	0.	94	22	A29	.01
1	29D	29.2	25.41	202.1	165.66	2	1232.	.10000	.00	.00	0.	94	17	A29	.01
1	30D	48.6	45.57	250.7	207.00	2	1423.	.08000	.00	.00	0.	94	15	A29	.01
1	31D	41.1	32.65	291.8	236.70	0	0.	.00000	.00	.00	0.	94	20	A29	.01
1	32AD	291.8	236.70	1024.5	799.31	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	796.57	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	796.57	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	32.81	1065.8	824.79	2	488.	.04000	.00	.00	0.	94	20	A29	.01
1	36A	46.4	40.38	1112.2	853.58	2	1107.	.02000	.00	.00	0.	94	17	A29	.01
1	37A	26.0	24.38	1138.2	858.33	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	38A	64.1	45.65	1202.3	898.26	2	1195.	.01000	.00	.00	0.	94	24	A29	.01
1	39A	56.1	44.56	1258.4	917.11	4	175.	.02000	7.00	.00	0.	94	20	A29	.01
1	40A	.0	.00	1258.4	916.67	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	916.67	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	30.09	37.8	30.09	4	1519.	.03000	2.00	.00	0.	94	20	A29	.02
1	43F	59.1	41.13	59.1	41.13	0	0.	.00000	.00	.00	0.	94	25	A29	.01
1	44F	52.1	45.34	111.2	86.40	4	161.	.06000	2.50	.00	0.	94	17	A29	.01
1	45EF	111.2	86.37	149.0	115.22	4	1818.	.06000	2.75	.00	0.	94	0	A29	.00
1	46AE	149.0	114.78	1407.4	1006.93	4	625.	.02000	7.25	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	1005.24	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	1005.24	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	1005.24	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	12.69	1418.2	1006.87	4	618.	.02000	7.25	.00	0.	94	10	A29	.01
1	51A	13.3	16.44	1431.5	1007.28	4	728.	.02000	7.25	.00	0.	94	9	A29	.01
1	52A	11.9	15.63	1443.4	1006.65	4	795.	.02000	7.25	.00	0.	94	8	A29	.01
1	53A	15.4	18.10	1458.8	1006.26	4	823.	.02000	7.25	.00	0.	94	10	A29	.01
1	54A	9.7	12.74	1468.5	1005.00	4	443.	.02000	7.25	.00	0.	94	8	A29	.01
1	55B	56.4	55.96	56.4	55.96	4	1197.	.05000	2.25	.00	0.	94	14	A29	.15
1	56AB	56.4	55.65	1524.9	1013.50	4	1344.	.05000	6.00	.00	0.	94	0	A29	.00
1	57A	20.8	23.12	1545.7	1011.70	4	449.	.05000	6.00	.00	0.	94	11	A29	.02
1	58A	7.0	9.85	1552.7	1010.94	4	680.	.05000	6.00	.00	0.	94	7	A29	.01
1	59A	9.6	16.47	1562.3	1010.83	4	1215.	.05000	6.00	.00	0.	94	5	A29	.01
1	60A	4.2	4.66	1566.5	1008.31	4	567.	.05000	6.00	.00	0.	94	11	A29	.01
1	61A	44.3	37.31	1610.8	1011.74	4	803.	.05000	6.00	.00	0.	94	18	A29	.01
1	62A	37.9	34.18	1648.7	1013.85	4	642.	.05000	6.00	.00	0.	94	16	A29	.01
1	63A	.0	.00	1648.7	1012.47	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PR5								
1	64A	.0	.00	1648.7	1012.47	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	37.61	40.4	37.61	4	664.	.06000	2.00	.00	0.	94	19	A29	.75
1	66C	39.8	27.92	80.2	65.41	4	1491.	.06000	2.25	.00	0.	94	30	A29	.50
1	67C	51.0	40.26	131.2	105.32	0	0.	.00000	.00	.00	0.	94	25	A29	.60
1	68C	34.8	23.85	166.0	129.17	4	880.	.06000	2.75	.00	0.	94	30	A29	.40
1	69C	13.1	13.67	179.1	141.73	4	832.	.06000	3.00	.00	0.	94	14	A29	.50
1	70C	63.7	47.24	242.8	188.78	4	566.	.06000	3.25	.00	0.	94	30	A29	.75
1	71C	10.0	10.44	252.8	197.95	4	27.	.06000	3.25	.00	0.	94	14	A29	.50
1	72C	.0	.00	252.8	197.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	8.60	7.0	8.60	4	1814.	.06000	2.00	.00	0.	94	10	A29	.40
1	74D	3.4	3.42	10.4	11.53	4	2106.	.02000	2.00	.00	0.	94	16	A29	.70
1	75D	23.6	19.42	34.0	29.29	4	1753.	.02000	2.00	.00	0.	94	23	A29	.60
1	76D	29.3	25.86	63.3	52.32	4	255.	.02000	2.50	.00	0.	94	22	A29	.86
1	77D	.0	.00	63.3	52.29	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	12.75	15.8	12.75	4	670.	.05000	2.00	.00	0.	94	23	A29	.50
1	79E	17.4	14.06	33.2	26.74	4	1024.	.05000	2.00	.00	0.	94	20	A29	.10
1	80E	5.0	4.87	38.2	31.47	4	81.	.05000	2.00	.00	0.	94	17	A29	.70
1	81DE	38.2	31.46	101.5	82.41	4	404.	.05000	2.50	.00	0.	94	0	A29	.00
1	82CD	101.5	82.35	354.3	279.86	4	947.	.05000	3.75	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	279.52	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	20.21	21.4	20.21	4	1656.	.06000	2.00	.00	0.	94	17	A29	.50
1	85F	27.1	27.39	48.5	46.77	4	1070.	.06000	2.00	.00	0.	94	15	A29	.50
1	86F	14.6	16.45	63.1	62.03	4	16.	.06000	2.25	.00	0.	94	12	A29	.50
1	87CF	63.1	62.03	417.4	337.74	4	585.	.05000	4.00	.00	0.	94	0	A29	.00
1	88C	34.4	29.94	451.8	365.90	4	523.	.05000	4.25	.00	0.	94	20	A29	.50
1	89C	23.7	19.08	475.5	383.95	4	449.	.20000	3.25	.00	0.	94	25	A29	.70
1	90C	6.9	7.30	482.4	388.63	0	0.	.00000	.00	.00	0.	94	12	A29	.02
1	91C	.0	.00	482.4	388.63	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	388.63	4	85.	.05000	4.25	.00	0.	94	99	A29	.00
1	93C	2.8	4.30	485.2	389.20	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	94C	.0	.00	485.2	389.20	4	85.	.05000	4.25	.00	0.	94	99	A29	.00
1	95C	1.9	3.26	487.1	389.57	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	389.57	4	76.	.05000	4.25	.00	0.	94	99	A29	.00
1	97C	1.2	2.06	488.3	389.84	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	389.84	4	283.	.05000	4.25	.00	0.	94	99	A29	.00
1	99C	4.3	6.60	492.6	390.81	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	100C	.0	.00	492.6	390.81	4	51.	.05000	4.25	.00	0.	94	99	A29	.00
1	101AC	492.6	390.78	2141.3	1244.12	4	36.	.05000	6.50	.00	0.	94	0	A29	.00
1	102A	16.0	21.01	2157.3	1245.50	0	0.	.00000	.00	.00	0.	94	8	A29	.01

♀
Program Package Serial Number: 2083
12/07/16 FILE: pr5 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE:
Northlake Phase 1, Prop. 5-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	14.12	200	14.44	300	15.16	400	15.96
500	16.90	600	18.11	700	19.63	800	21.67	900	24.54
1000	29.24	1050	40.21	1100	95.87	1110	118.32	1120	150.61
1130	197.14	1131	202.48	1132	207.94	1133	213.72	1134	219.76
1135	226.15	1136	232.79	1137	239.76	1138	247.15	1139	254.86
1140	262.75	1141	270.95	1142	279.77	1143	289.15	1144	299.13
1145	309.98	1146	321.90	1147	334.55	1148	347.79	1149	363.54
1150	383.20	1151	405.92	1152	431.61	1153	460.59	1154	490.84
1155	520.64	1156	550.21	1157	579.13	1158	607.26	1159	634.52
1160	660.87	1161	686.12	1162	710.19	1163	732.97	1164	754.71
1165	774.66	1166	794.14	1167	814.41	1168	835.16	1169	856.16
1170	878.54	1171	900.92	1172	922.95	1173	944.53	1174	964.06
1175	980.79	1176	993.99	1177	1004.08	1178	1009.97	1179	1012.47
1180	1009.95	1181	994.26	1182	960.25	1183	912.71	1184	860.23
1185	806.26	1186	754.35	1187	704.30	1188	656.67	1189	611.60
1190	569.48	1191	530.32	1192	493.96	1193	460.44	1194	429.63
1195	401.13	1196	375.06	1197	351.35	1198	329.40	1199	309.66
1200	291.57	1201	274.82	1202	259.57	1203	244.94	1204	231.53
1205	219.58	1206	208.62	1207	197.96	1208	188.13	1209	178.71
1210	169.71	1211	161.20	1212	153.31	1213	146.29	1214	139.72
1215	133.43	1216	127.44	1217	121.86	1218	116.90	1219	112.42
1220	108.11	1221	103.93	1222	99.96	1223	96.34	1224	93.24
1225	90.14	1226	87.10	1227	84.07	1228	81.09	1229	78.20
1230	75.40	1231	72.70	1232	70.10	1233	67.61	1234	65.23
1235	62.94	1236	60.75	1237	58.67	1238	56.69	1239	54.79
1240	53.01	1241	51.32	1242	49.73	1243	48.22	1244	46.81
1245	45.49	1246	44.26	1247	43.13	1248	42.09	1249	41.18
1250	40.40	1251	39.84	1252	39.28	1253	38.73	1254	38.14
1255	37.55	1256	36.94	1257	36.34	1258	35.76	1259	35.18
1260	34.62	1261	34.08	1262	33.56	1263	33.06	1264	32.57
1265	32.11	1266	31.66	1267	31.23	1268	30.82	1269	30.43
1270	30.06	1271	29.70	1272	29.35	1273	29.00	1274	28.67
1275	28.36	1276	28.07	1277	27.80	1278	27.55	1279	27.31
1280	27.09	1281	26.88	1282	26.68	1283	26.48	1284	26.29
1285	26.10	1286	25.92	1287	25.74	1288	25.57	1289	25.40
1290	25.23	1291	25.07	1292	24.92	1293	24.77	1294	24.62
1295	24.48	1296	24.34	1297	24.21	1298	24.10	1299	24.00
1300	23.90	1310	22.92	1320	21.93	1330	21.14	1340	20.37
1350	19.65	1360	19.11	1370	18.50	1380	17.99	1390	17.48
1400	17.04	1420	16.27	1440	15.58	1460	14.12	1500	14.12

TOTAL VOLUME THIS HYDROGRAPH = 106.85(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr5 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE:
Northlake Phase 1, Prop. 5-yr CLEAR, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	20.62	200	21.46	300	22.63	400	23.82
500	25.35	600	27.27	700	29.73	800	32.95	900	37.68
1000	45.49	1050	57.43	1100	82.62	1110	92.50	1120	108.36
1130	129.81	1131	132.23	1132	134.67	1133	137.23	1134	139.88
1135	142.59	1136	145.36	1137	148.32	1138	151.51	1139	154.83
1140	158.33	1141	162.17	1142	166.35	1143	170.80	1144	175.58
1145	180.95	1146	186.96	1147	193.56	1148	200.71	1149	210.61
1150	223.63	1151	239.54	1152	258.93	1153	281.47	1154	304.09
1155	325.28	1156	344.24	1157	359.69	1158	371.80	1159	380.26
1160	386.01	1161	388.63	1162	388.42	1163	386.17	1164	381.82
1165	375.69	1166	367.87	1167	358.44	1168	348.20	1169	336.57
1170	323.45	1171	310.17	1172	297.11	1173	283.66	1174	269.36
1175	254.72	1176	239.96	1177	224.78	1178	209.64	1179	195.52
1180	182.39	1181	169.69	1182	157.45	1183	145.73	1184	134.82
1185	124.78	1186	115.78	1187	107.76	1188	101.04	1189	95.10
1190	90.16	1191	85.83	1192	82.11	1193	78.99	1194	76.18
1195	73.66	1196	71.35	1197	69.24	1198	67.24	1199	65.41
1200	63.73	1201	62.18	1202	60.73	1203	59.37	1204	58.09
1205	56.94	1206	55.88	1207	54.85	1208	53.90	1209	53.04
1210	52.22	1211	51.47	1212	50.78	1213	50.15	1214	49.55
1215	48.95	1216	48.41	1217	47.90	1218	47.38	1219	46.91
1220	46.46	1221	46.00	1222	45.56	1223	45.15	1224	44.76
1225	44.36	1226	43.98	1227	43.61	1228	43.26	1229	42.92
1230	42.55	1231	42.20	1232	41.88	1233	41.55	1234	41.22
1235	40.92	1236	40.63	1237	40.35	1238	40.06	1239	39.78
1240	39.51	1241	39.25	1242	38.99	1243	38.75	1244	38.51
1245	38.26	1246	38.02	1247	37.77	1248	37.54	1249	37.35
1250	37.15	1251	36.94	1252	36.71	1253	36.50	1254	36.28
1255	36.08	1256	35.90	1257	35.70	1258	35.51	1259	35.31
1260	35.12	1261	34.92	1262	34.71	1263	34.55	1264	34.39
1265	34.19	1266	34.01	1267	33.84	1268	33.66	1269	33.48
1270	33.32	1271	33.16	1272	33.00	1273	32.87	1274	32.72
1275	32.57	1276	32.42	1277	32.27	1278	32.13	1279	32.01
1280	31.89	1281	31.75	1282	31.61	1283	31.47	1284	31.35
1285	31.22	1286	31.09	1287	30.95	1288	30.80	1289	30.67
1290	30.54	1291	30.40	1292	30.27	1293	30.15	1294	30.01
1295	29.89	1296	29.79	1297	29.68	1298	29.56	1299	29.44
1300	29.33	1310	28.48	1320	27.71	1330	26.86	1340	25.95
1350	25.18	1360	24.61	1370	24.10	1380	23.64	1390	22.98
1400	22.53	1420	21.85	1440	20.90	1460	20.56	1500	20.56

TOTAL VOLUME THIS HYDROGRAPH = 81.09(Ac.Ft)

Program Package Serial Number: 2083
08/19/16 FILE: PR5 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE:
Northlake Phase 1, Prop. 5-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.13	200	.14	300	.15	400	.15
500	.16	600	.18	700	.19	800	.21	900	.24
1000	.29	1050	.54	1100	1.45	1110	2.36	1120	2.89
1130	3.81	1131	3.90	1132	3.98	1133	4.13	1134	4.27
1135	4.42	1136	4.56	1137	4.83	1138	5.11	1139	5.30
1140	5.49	1141	5.80	1142	6.12	1143	6.43	1144	6.75
1145	7.25	1146	7.82	1147	8.39	1148	8.91	1149	11.37
1150	13.87	1151	16.31	1152	18.81	1153	21.01	1154	20.94
1155	20.54	1156	20.01	1157	17.17	1158	14.27	1159	11.37
1160	8.39	1161	5.43	1162	4.49	1163	3.94	1164	3.46
1165	3.16	1166	2.86	1167	2.55	1168	2.37	1169	2.19
1170	2.07	1171	1.89	1172	1.77	1173	1.65	1174	1.53
1175	1.47	1176	1.35	1177	1.28	1178	1.16	1179	1.09
1180	1.02	1181	.95	1182	.87	1183	.80	1184	.73
1185	.66	1186	.66	1187	.59	1188	.51	1189	.44
1190	.44	1191	.37	1192	.34	1193	.34	1194	.33
1195	.33	1196	.33	1197	.33	1198	.32	1199	.32
1200	.32	1201	.31	1202	.31	1203	.30	1204	.30
1205	.30	1206	.30	1207	.29	1208	.29	1209	.29
1210	.28	1211	.29	1212	.28	1213	.28	1214	.27
1215	.27	1216	.27	1217	.26	1218	.26	1219	.26
1220	.26	1221	.26	1222	.26	1223	.26	1224	.25
1225	.25	1226	.26	1227	.25	1228	.25	1229	.25
1230	.24	1231	.24	1232	.24	1233	.24	1234	.23
1235	.23	1236	.23	1237	.23	1238	.23	1239	.23
1240	.23	1241	.23	1242	.23	1243	.23	1244	.23
1245	.22	1246	.23	1247	.22	1248	.22	1249	.22
1250	.22	1251	.22	1252	.21	1253	.22	1254	.21
1255	.22	1256	.21	1257	.21	1258	.21	1259	.20
1260	.21	1261	.20	1262	.20	1263	.20	1264	.20
1265	.20	1266	.20	1267	.20	1268	.20	1269	.20
1270	.20	1271	.20	1272	.20	1273	.20	1274	.20
1275	.20	1276	.20	1277	.19	1278	.19	1279	.20
1280	.20	1281	.19	1282	.19	1283	.19	1284	.19
1285	.19	1286	.19	1287	.18	1288	.18	1289	.18
1290	.18	1291	.18	1292	.18	1293	.18	1294	.18
1295	.18	1296	.18	1297	.18	1298	.18	1299	.18
1300	.18	1310	.18	1320	.17	1330	.16	1340	.16
1350	.16	1360	.15	1370	.15	1380	.15	1390	.14
1400	.15	1420	.14	1440	.13	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = .99(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: PR2 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 2-yr CLEAR

LOCATION		SUBAREA AREA(AC)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	40.9	14.58	40.9	14.58	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	2A	50.6	20.94	91.5	35.47	2	1320.	.10000	.00	.00	0.	94	24	A29	.01
1	3A	48.8	20.20	140.3	55.21	2	960.	.10000	.00	.00	0.	94	24	A29	.01
1	4A	37.8	17.06	178.1	71.43	2	1272.	.08000	.00	.00	0.	94	21	A29	.01
1	5A	46.9	17.98	225.0	88.36	0	0.	.00000	.00	.00	0.	94	27	A29	.01
1	6A	.0	.00	225.0	88.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	88.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	23.56	55.4	23.56	1	1656.	.12000	.00	.00	0.	94	23	A29	.01
1	9B	51.0	20.04	106.4	41.29	0	0.	.00000	.00	.00	0.	94	26	A29	.01
1	10AB	106.4	41.29	331.4	129.64	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	16.91	377.7	144.63	0	0.	.00000	.00	.00	0.	94	29	A29	.01
1	12A	46.7	17.06	424.4	160.85	0	0.	.00000	.00	.00	0.	94	29	A29	.01
1	13A	55.0	21.62	479.4	180.92	2	1584.	.04000	.00	.00	0.	94	26	A29	.01
1	14A	52.8	20.24	532.2	197.15	0	0.	.00000	.00	.00	0.	94	27	A29	.01
1	15A	52.6	18.75	584.8	214.30	2	1085.	.05000	.00	.00	0.	94	30	A29	.01
1	16A	23.5	10.29	608.3	221.50	0	0.	.00000	.00	.00	0.	94	22	A29	.01
1	17A	.0	.00	608.3	221.50	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	221.50	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	13.37	26.0	13.37	2	1584.	.09000	.00	.00	0.	94	17	A29	.01
1	20C	48.7	17.36	74.7	30.07	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	21AC	74.7	30.07	683.0	247.79	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	17.72	732.7	262.27	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	23A	.0	.00	732.7	262.27	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	262.27	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	16.84	45.0	16.84	0	0.	.00000	.00	.00	0.	94	28	A29	.01
1	26D	31.1	11.36	76.1	28.19	2	1020.	.10000	.00	.00	0.	94	29	A29	.01
1	27D	49.3	18.01	125.4	46.03	2	1290.	.10000	.00	.00	0.	94	29	A29	.01
1	28D	47.5	16.93	172.9	62.50	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	29D	29.2	11.19	202.1	73.42	2	1232.	.10000	.00	.00	0.	94	27	A29	.01
1	30D	48.6	20.67	250.7	92.66	2	1423.	.08000	.00	.00	0.	94	23	A29	.01
1	31D	41.1	14.65	291.8	106.16	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	32AD	291.8	106.16	1024.5	364.28	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	363.53	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	363.53	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	14.72	1065.8	376.08	2	488.	.04000	.00	.00	0.	94	30	A29	.01
1	36A	46.4	17.79	1112.2	390.19	2	1107.	.02000	.00	.00	0.	94	27	A29	.01
1	37A	26.0	11.06	1138.2	393.79	0	0.	.00000	.00	.00	0.	94	23	A29	.01
1	38A	64.1	22.85	1202.3	412.16	2	1195.	.01000	.00	.00	0.	94	30	A29	.01
1	39A	56.1	20.00	1258.4	422.66	4	175.	.02000	5.25	.00	0.	94	30	A29	.01
1	40A	.0	.00	1258.4	422.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	422.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	13.54	37.8	13.54	4	1519.	.03000	2.00	.00	0.	94	30	A29	.02
1	43F	59.1	21.07	59.1	21.07	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	44F	52.1	19.97	111.2	41.02	4	161.	.06000	2.00	.00	0.	94	27	A29	.01
1	45EF	111.2	41.02	149.0	54.23	4	1818.	.06000	2.00	.00	0.	94	0	A29	.00
1	46AE	149.0	53.97	1407.4	465.49	4	625.	.02000	5.50	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	465.11	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	465.11	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	465.11	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	6.03	1418.2	465.34	4	618.	.02000	5.50	.00	0.	94	15	A29	.01
1	51A	13.3	8.06	1431.5	465.18	4	728.	.02000	5.50	.00	0.	94	13	A29	.01
1	52A	11.9	7.98	1443.4	464.78	4	795.	.02000	5.50	.00	0.	94	11	A29	.01
1	53A	15.4	8.60	1458.8	464.33	4	823.	.02000	5.50	.00	0.	94	15	A29	.01
1	54A	9.7	6.17	1468.5	463.65	4	443.	.02000	5.50	.00	0.	94	12	A29	.01
1	55B	56.4	26.74	56.4	26.74	4	1197.	.05000	2.00	.00	0.	94	21	A29	.15
1	56AB	56.4	26.67	1524.9	466.71	4	1344.	.05000	4.50	.00	0.	94	0	A29	.00
1	57A	20.8	10.73	1545.7	465.61	4	449.	.05000	4.50	.00	0.	94	17	A29	.02
1	58A	7.0	4.70	1552.7	465.65	4	680.	.05000	4.50	.00	0.	94	11	A29	.01
1	59A	9.6	10.24	1562.3	465.27	4	1215.	.05000	4.50	.00	0.	94	5	A29	.01
1	60A	4.2	2.25	1566.5	464.28	4	567.	.05000	4.50	.00	0.	94	16	A29	.01
1	61A	44.3	16.58	1610.8	464.87	4	803.	.05000	4.50	.00	0.	94	28	A29	.01
1	62A	37.9	15.69	1648.7	464.97	4	642.	.05000	4.50	.00	0.	94	24	A29	.01
1	63A	.0	.00	1648.7	464.39	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PR2							
1	64A	.0	.00	1648.7	464.39	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	20.76	40.4	20.76	4	664.	.06000	2.00	.00	0.	94	26	A29	.75
1	66C	39.8	17.37	80.2	38.11	4	1491.	.06000	2.00	.00	0.	94	30	A29	.50
1	67C	51.0	23.09	131.2	61.11	0	0.	.00000	.00	.00	0.	94	30	A29	.60
1	68C	34.8	14.62	166.0	75.71	4	880.	.06000	2.25	.00	0.	94	30	A29	.40
1	69C	13.1	7.16	179.1	82.48	4	832.	.06000	2.50	.00	0.	94	20	A29	.50
1	70C	63.7	30.40	242.8	112.59	4	566.	.06000	2.75	.00	0.	94	30	A29	.75
1	71C	10.0	5.46	252.8	117.63	4	27.	.06000	2.75	.00	0.	94	20	A29	.50
1	72C	.0	.00	252.8	117.63	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	4.50	7.0	4.50	4	1814.	.06000	2.00	.00	0.	94	14	A29	.40
1	74D	3.4	1.83	10.4	6.16	4	2106.	.02000	2.00	.00	0.	94	23	A29	.70
1	75D	23.6	10.68	34.0	16.06	4	1753.	.02000	2.00	.00	0.	94	30	A29	.60
1	76D	29.3	14.77	63.3	29.61	4	255.	.02000	2.00	.00	0.	94	29	A29	.86
1	77D	.0	.00	63.3	29.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	6.90	15.8	6.90	4	670.	.05000	2.00	.00	0.	94	30	A29	.50
1	79E	17.4	6.46	33.2	13.34	4	1024.	.05000	2.00	.00	0.	94	30	A29	.10
1	80E	5.0	2.69	38.2	15.95	4	81.	.05000	2.00	.00	0.	94	23	A29	.70
1	81DE	38.2	15.95	101.5	45.00	4	404.	.05000	2.00	.00	0.	94	0	A29	.00
1	82CD	101.5	45.00	354.3	161.98	4	947.	.05000	3.25	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	161.89	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	10.57	21.4	10.57	4	1656.	.06000	2.00	.00	0.	94	24	A29	.50
1	85F	27.1	14.40	48.5	24.67	4	1070.	.06000	2.00	.00	0.	94	21	A29	.50
1	86F	14.6	8.42	63.1	32.76	4	16.	.06000	2.00	.00	0.	94	18	A29	.50
1	87CF	63.1	32.75	417.4	193.63	4	585.	.05000	3.25	.00	0.	94	0	A29	.00
1	88C	34.4	15.31	451.8	208.45	4	523.	.05000	3.50	.00	0.	94	29	A29	.50
1	89C	23.7	11.12	475.5	219.16	4	449.	.20000	2.75	.00	0.	94	30	A29	.70
1	90C	6.9	3.56	482.4	222.03	0	0.	.00000	.00	.00	0.	94	17	A29	.02
1	91C	.0	.00	482.4	222.03	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	222.03	4	85.	.05000	3.50	.00	0.	94	99	A29	.00
1	93C	2.8	2.11	485.2	222.32	0	0.	.00000	.00	.00	0.	94	9	A29	.02
1	94C	.0	.00	485.2	222.32	4	85.	.05000	3.50	.00	0.	94	99	A29	.00
1	95C	1.9	1.80	487.1	222.46	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	96C	.0	.00	487.1	222.46	4	76.	.05000	3.50	.00	0.	94	99	A29	.00
1	97C	1.2	1.14	488.3	222.54	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	98C	.0	.00	488.3	222.54	4	283.	.05000	3.50	.00	0.	94	99	A29	.00
1	99C	4.3	3.24	492.6	222.92	0	0.	.00000	.00	.00	0.	94	9	A29	.02
1	100C	.0	.00	492.6	222.92	4	51.	.05000	3.50	.00	0.	94	99	A29	.00
1	101AC	492.6	222.90	2141.3	592.17	4	36.	.05000	5.00	.00	0.	94	0	A29	.00
1	102A	16.0	10.73	2157.3	592.43	0	0.	.00000	.00	.00	0.	94	11	A29	.01

Program Package Serial Number: 2083
12/07/16 FILE: PR2 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE:
Northlake Phase 1, Prop. 2-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	9.36	200	9.55	300	10.02	400	10.55
500	11.16	600	11.97	700	13.00	800	14.31	900	16.18
1000	19.15	1050	22.13	1100	27.43	1110	29.30	1120	34.64
1130	45.70	1131	47.07	1132	48.49	1133	49.98	1134	51.58
1135	53.29	1136	55.12	1137	57.11	1138	59.28	1139	61.60
1140	64.01	1141	66.57	1142	69.37	1143	72.45	1144	75.80
1145	79.51	1146	83.64	1147	88.16	1148	93.04	1149	98.84
1150	106.18	1151	114.83	1152	124.68	1153	135.97	1154	148.05
1155	160.20	1156	172.37	1157	184.57	1158	196.70	1159	208.96
1160	221.41	1161	234.05	1162	246.88	1163	259.78	1164	272.52
1165	284.83	1166	296.58	1167	307.79	1168	318.60	1169	329.10
1170	339.38	1171	349.88	1172	360.83	1173	371.88	1174	382.76
1175	393.62	1176	404.17	1177	413.68	1178	422.18	1179	430.06
1180	437.18	1181	443.25	1182	448.36	1183	452.93	1184	457.10
1185	460.41	1186	462.79	1187	464.27	1188	464.39	1189	462.13
1190	455.60	1191	443.75	1192	426.69	1193	407.57	1194	387.06
1195	367.54	1196	348.96	1197	331.35	1198	314.56	1199	298.48
1200	283.05	1201	268.21	1202	253.97	1203	240.30	1204	227.23
1205	214.75	1206	202.91	1207	191.64	1208	180.94	1209	170.90
1210	161.43	1211	152.52	1212	144.23	1213	136.47	1214	129.21
1215	122.45	1216	116.04	1217	110.06	1218	104.55	1219	99.45
1220	94.70	1221	90.12	1222	85.87	1223	82.00	1224	78.47
1225	75.09	1226	71.81	1227	68.70	1228	65.81	1229	63.18
1230	60.82	1231	58.67	1232	56.59	1233	54.57	1234	52.64
1235	50.83	1236	49.15	1237	47.61	1238	46.21	1239	44.81
1240	43.33	1241	41.87	1242	40.47	1243	39.15	1244	37.90
1245	36.72	1246	35.62	1247	34.57	1248	33.58	1249	32.68
1250	31.86	1251	31.10	1252	30.40	1253	29.74	1254	29.12
1255	28.56	1256	28.00	1257	27.45	1258	26.97	1259	26.46
1260	25.97	1261	25.49	1262	25.03	1263	24.59	1264	24.17
1265	23.77	1266	23.39	1267	23.02	1268	22.67	1269	22.35
1270	22.04	1271	21.74	1272	21.48	1273	21.23	1274	20.99
1275	20.77	1276	20.54	1277	20.33	1278	20.11	1279	19.90
1280	19.70	1281	19.51	1282	19.33	1283	19.16	1284	19.01
1285	18.87	1286	18.74	1287	18.59	1288	18.44	1289	18.29
1290	18.15	1291	18.00	1292	17.87	1293	17.73	1294	17.61
1295	17.48	1296	17.36	1297	17.24	1298	17.13	1299	17.02
1300	16.91	1310	15.95	1320	15.18	1330	14.51	1340	13.92
1350	13.40	1360	12.95	1370	12.53	1380	12.17	1390	11.84
1400	11.55	1420	11.03	1440	10.55	1460	9.57	1500	9.36

TOTAL VOLUME THIS HYDROGRAPH = 56.96(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr2 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE:
Northlake Phase 1, Prop. 2-yr CLEAR, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	13.67	200	14.22	300	14.99	400	15.78
500	16.79	600	18.06	700	19.68	800	21.81	900	24.94
1000	30.10	1050	36.72	1100	47.07	1110	50.29	1120	57.76
1130	71.38	1131	72.95	1132	74.50	1133	76.14	1134	77.83
1135	79.56	1136	81.34	1137	83.19	1138	85.12	1139	87.13
1140	89.23	1141	91.45	1142	93.83	1143	96.38	1144	99.09
1145	102.08	1146	105.38	1147	108.97	1148	112.85	1149	118.00
1150	124.56	1151	132.39	1152	141.88	1153	153.08	1154	164.70
1155	176.12	1156	186.94	1157	196.47	1158	204.37	1159	210.67
1160	215.41	1161	218.66	1162	220.72	1163	221.81	1164	222.03
1165	221.65	1166	220.42	1167	218.58	1168	216.16	1169	213.08
1170	209.37	1171	205.32	1172	200.61	1173	195.39	1174	189.72
1175	183.60	1176	177.30	1177	171.10	1178	164.76	1179	157.64
1180	149.90	1181	141.61	1182	132.28	1183	122.20	1184	112.18
1185	102.37	1186	92.77	1187	84.10	1188	76.38	1189	69.83
1190	64.32	1191	59.72	1192	56.06	1193	53.13	1194	50.74
1195	48.80	1196	47.19	1197	45.87	1198	44.66	1199	43.58
1200	42.60	1201	41.70	1202	40.88	1203	40.09	1204	39.36
1205	38.69	1206	38.06	1207	37.44	1208	36.88	1209	36.36
1210	35.86	1211	35.38	1212	34.92	1213	34.48	1214	34.06
1215	33.64	1216	33.24	1217	32.86	1218	32.49	1219	32.14
1220	31.79	1221	31.46	1222	31.14	1223	30.83	1224	30.53
1225	30.24	1226	29.96	1227	29.71	1228	29.46	1229	29.22
1230	28.97	1231	28.72	1232	28.48	1233	28.26	1234	28.03
1235	27.79	1236	27.57	1237	27.38	1238	27.18	1239	26.97
1240	26.79	1241	26.61	1242	26.43	1243	26.24	1244	26.06
1245	25.90	1246	25.72	1247	25.55	1248	25.39	1249	25.23
1250	25.07	1251	24.92	1252	24.78	1253	24.64	1254	24.51
1255	24.37	1256	24.23	1257	24.09	1258	23.96	1259	23.82
1260	23.70	1261	23.57	1262	23.43	1263	23.30	1264	23.18
1265	23.05	1266	22.93	1267	22.81	1268	22.69	1269	22.58
1270	22.46	1271	22.35	1272	22.24	1273	22.14	1274	22.03
1275	21.93	1276	21.82	1277	21.72	1278	21.62	1279	21.52
1280	21.44	1281	21.34	1282	21.25	1283	21.16	1284	21.07
1285	20.98	1286	20.89	1287	20.80	1288	20.70	1289	20.62
1290	20.52	1291	20.43	1292	20.35	1293	20.25	1294	20.17
1295	20.09	1296	20.01	1297	19.93	1298	19.86	1299	19.78
1300	19.70	1310	19.06	1320	18.51	1330	17.98	1340	17.37
1350	16.84	1360	16.41	1370	16.07	1380	15.75	1390	15.35
1400	15.02	1420	14.57	1440	13.95	1460	13.63	1500	13.63

TOTAL VOLUME THIS HYDROGRAPH = 52.12(Ac.Ft)

Program Package Serial Number: 2083

08/18/16 FILE: pr2 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE:

Northlake Phase 1, Prop. 2-yr CLEAR, NATURAL HYD.

HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.09	200	.09	300	.10	400	.10
500	.11	600	.12	700	.13	800	.14	900	.16
1000	.20	1050	.24	1100	.31	1110	.66	1120	1.10
1130	1.70	1131	1.80	1132	1.84	1133	1.91	1134	1.98
1135	2.05	1136	2.12	1137	2.25	1138	2.37	1139	2.50
1140	2.63	1141	2.85	1142	3.02	1143	3.19	1144	3.34
1145	3.63	1146	3.95	1147	4.27	1148	4.51	1149	5.74
1150	6.99	1151	8.20	1152	9.39	1153	10.58	1154	10.73
1155	10.73	1156	10.48	1157	10.14	1158	9.76	1159	9.39
1160	7.96	1161	6.53	1162	5.11	1163	3.72	1164	2.29
1165	1.85	1166	1.53	1167	1.27	1168	1.08	1169	.88
1170	.70	1171	.56	1172	.42	1173	.35	1174	.33
1175	.32	1176	.31	1177	.31	1178	.30	1179	.29
1180	.28	1181	.28	1182	.27	1183	.27	1184	.26
1185	.26	1186	.26	1187	.25	1188	.24	1189	.24
1190	.24	1191	.24	1192	.23	1193	.23	1194	.23
1195	.22	1196	.22	1197	.22	1198	.22	1199	.22
1200	.21	1201	.21	1202	.21	1203	.20	1204	.20
1205	.20	1206	.20	1207	.19	1208	.19	1209	.19
1210	.19	1211	.19	1212	.19	1213	.19	1214	.19
1215	.18	1216	.18	1217	.18	1218	.18	1219	.18
1220	.18	1221	.18	1222	.17	1223	.17	1224	.17
1225	.17	1226	.17	1227	.17	1228	.17	1229	.17
1230	.16	1231	.16	1232	.16	1233	.16	1234	.16
1235	.16	1236	.16	1237	.16	1238	.15	1239	.15
1240	.15	1241	.16	1242	.15	1243	.15	1244	.15
1245	.15	1246	.15	1247	.15	1248	.15	1249	.15
1250	.15	1251	.15	1252	.14	1253	.15	1254	.14
1255	.14	1256	.14	1257	.14	1258	.14	1259	.14
1260	.14	1261	.14	1262	.13	1263	.14	1264	.13
1265	.13	1266	.13	1267	.13	1268	.13	1269	.13
1270	.13	1271	.13	1272	.13	1273	.13	1274	.13
1275	.13	1276	.13	1277	.13	1278	.13	1279	.13
1280	.13	1281	.13	1282	.13	1283	.13	1284	.12
1285	.12	1286	.12	1287	.12	1288	.12	1289	.12
1290	.12	1291	.12	1292	.12	1293	.12	1294	.12
1295	.12	1296	.12	1297	.12	1298	.12	1299	.12
1300	.12	1310	.12	1320	.11	1330	.11	1340	.10
1350	.10	1360	.10	1370	.10	1380	.10	1390	.09
1400	.10	1420	.09	1440	.09	1460	.00	1500	.00

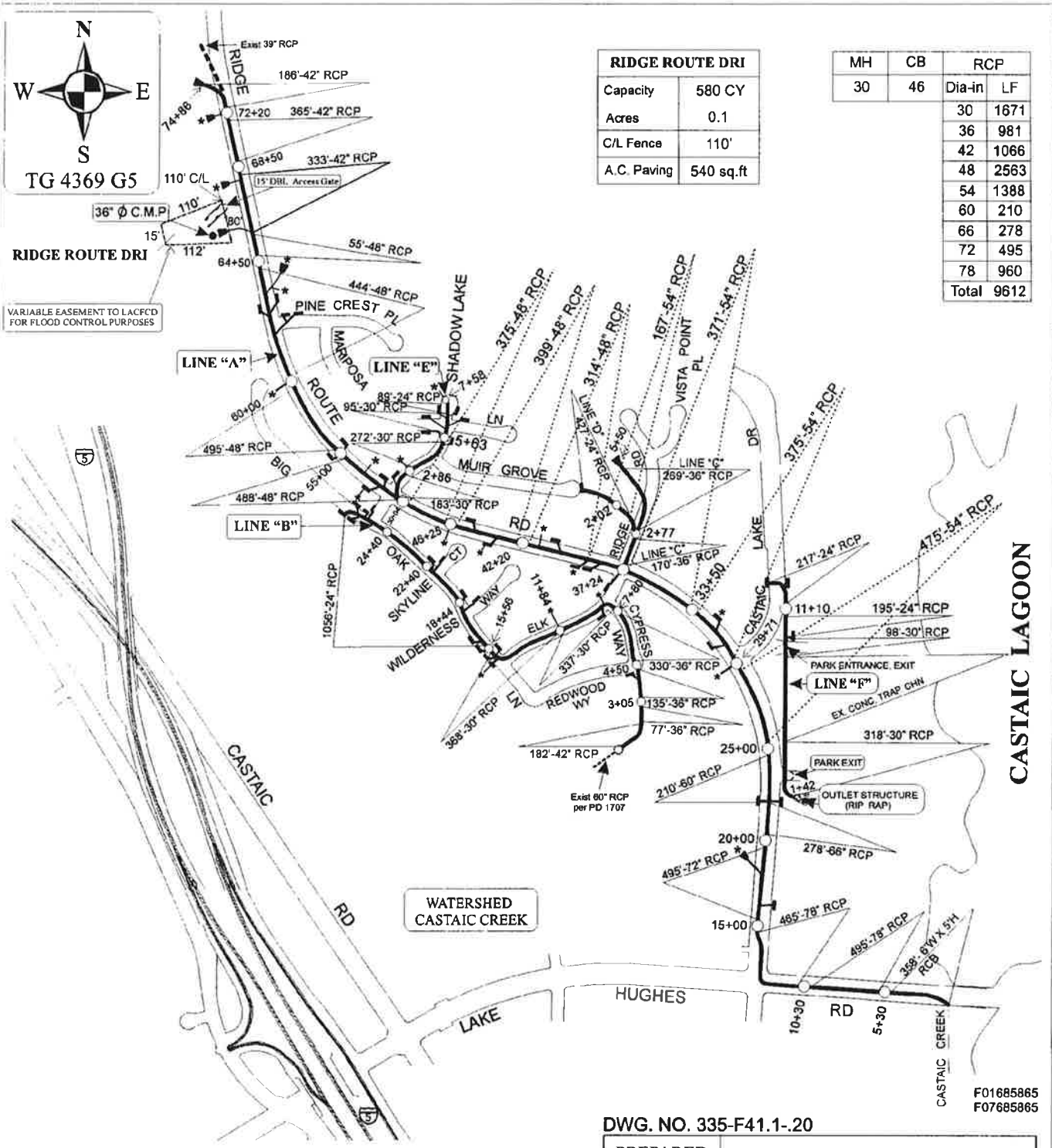
TOTAL VOLUME THIS HYDROGRAPH = .54(Ac.Ft)

TC Calculator Results

VTM 73336, Northlake Phase 1
Proposed Condition

LID Clear Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)	Volume (ac-ft)
LID	200A	8.0	0.65	LID	94	2279	0.03	1.2	55	0.23	0.22	0.66	1.2	0.49
LID	202A	6.3	0.5	LID	94	1372	0.036	1.2	41	0.27	0.30	0.60	1	0.27
LID	2b	4.8	0.91	LID	94	642	0.13	1.2	16	0.40	0.46	0.86	1.6	0.37
LID	3a	1.5	0.85	50	94	240	0.01	5.8	5	3.46	0.89	0.9	4.7	0.58
LID	3b	0.2	1.0	50	94	250	0.12	5.8	5	3.46	0.89	0.9	0.62	0.08



RIDGE ROUTE DRI	
Capacity	580 CY
Acres	0.1
C/L Fence	110'
A.C. Paving	540 sq.ft

MH	CB	RCP	
30	46	Dia-in	LF
		30	1671
		36	981
		42	1066
		48	2563
		54	1388
		60	210
		66	278
		72	495
		78	960
		Total	9612

F01685865
F07685865

DWG. NO. 335-F41.1-.20

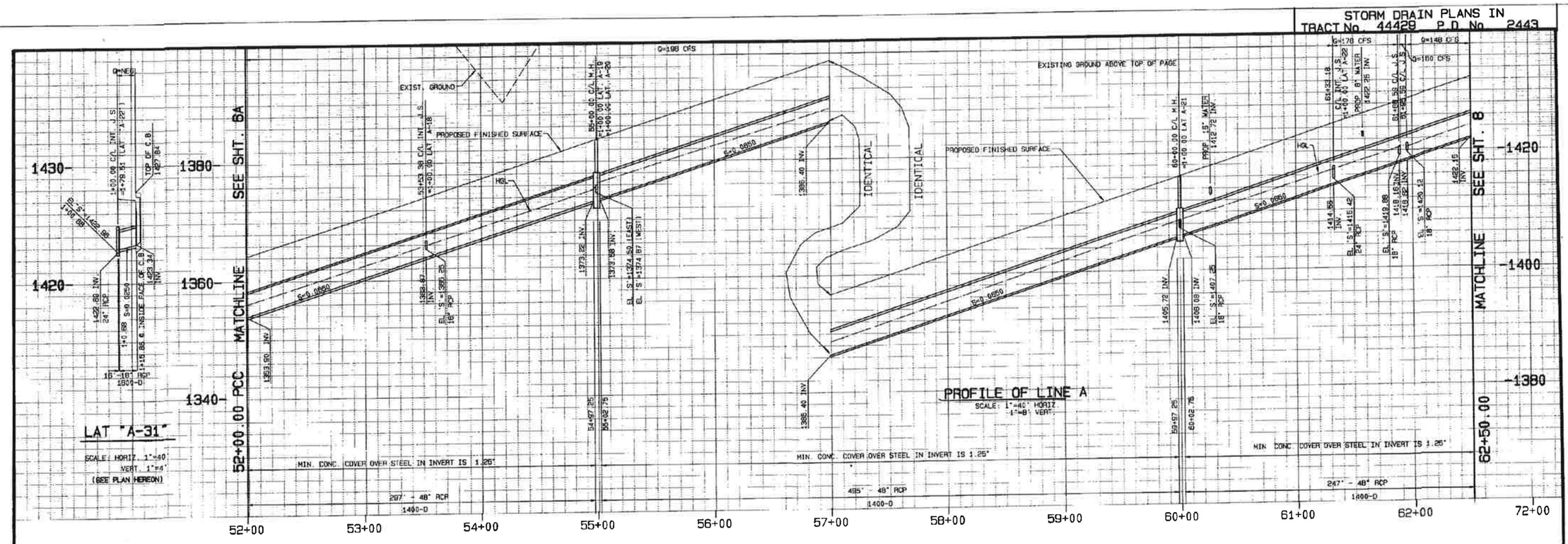
LEGEND

PROJECT	ITEM	EXISTING
———	Storm Drain	- - - - - - -
— ▬ —	Catch Basin	▭
○	Manhole	○
▼	Inlet	▽

An * by any Structure Denotes that it is not Maintained by LACFCD.

PREPARED SH	LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DATE 03/07/2005	**PD 2443**
SCALE N/A	**CASTAIC**

STORM DRAIN PLANS IN
TRACT No. 44429 P.D No. 2443

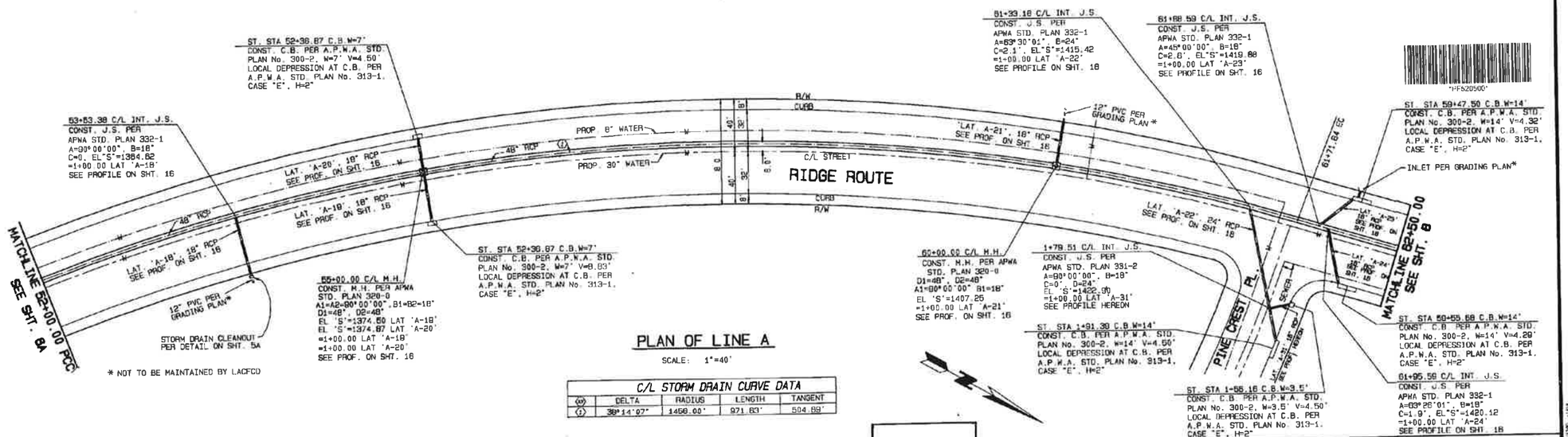


LAT "A-31"

SCALE: HORIZ. 1"=40'
VERT. 1"=4'
(SEE PLAN HEREON)

PROFILE OF LINE A

SCALE: 1"=40' HORIZ.
1"=8' VERT.



PLAN OF LINE A

SCALE: 1"=40'

C/L STORM DRAIN CURVE DATA				
	DELTA	RADIUS	LENGTH	TANGENT
②	38°14'07"	1458.00'	971.83'	504.89'

NO.	REVISION	REVISED BY	APPROVED BY	DATE

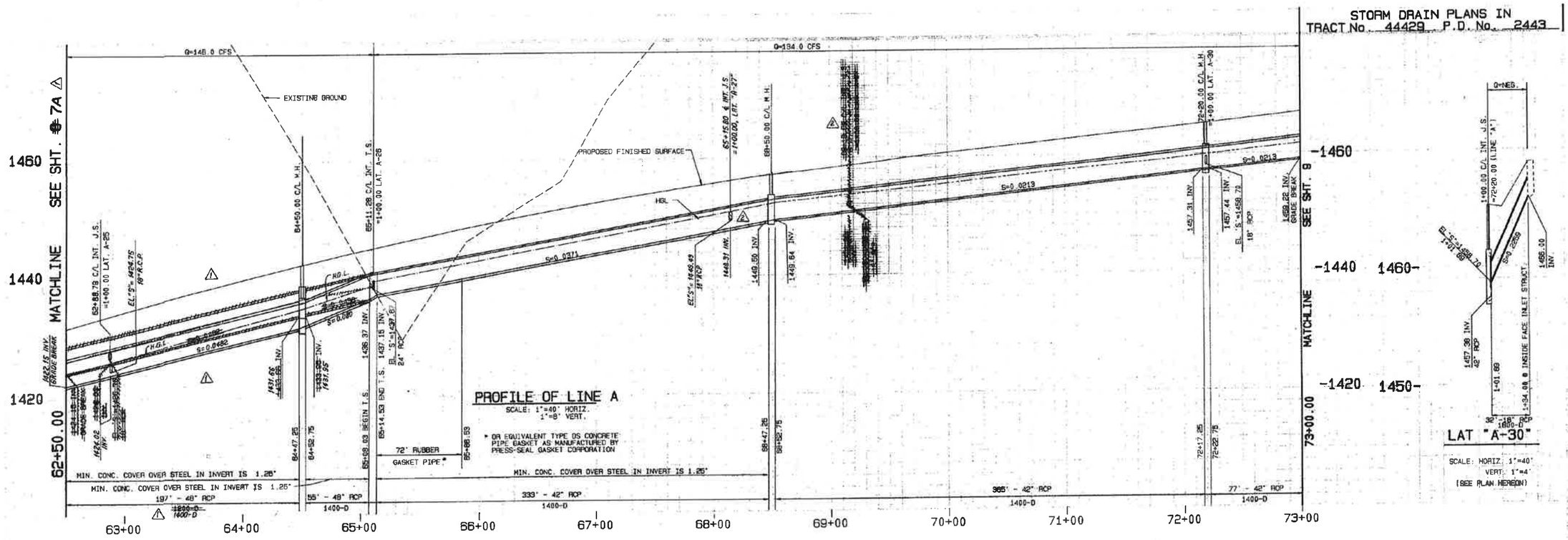
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818)-787-8550
SIGNATURE: _____ R.C.E. NO. 37953

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS

CHECKED BY: _____ R.C.E. NO. 46641 DATE: 12-7-98
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 7A OF 20 SHTS

STORM DRAIN PLANS IN
TRACT No. 44429 P.D. No. 2443



PROFILE OF LINE A

SCALE: 1"=40' HORIZ.
1"=8' VERT.

* OR EQUIVALENT TYPE OS CONCRETE PIPE GASKET AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION

LAT "A-30"

SCALE: HORIZ. 1"=40'
VERT. 1"=4'
(SEE PLAN HEREON)

C/L STORM DRAIN CURVE DATA

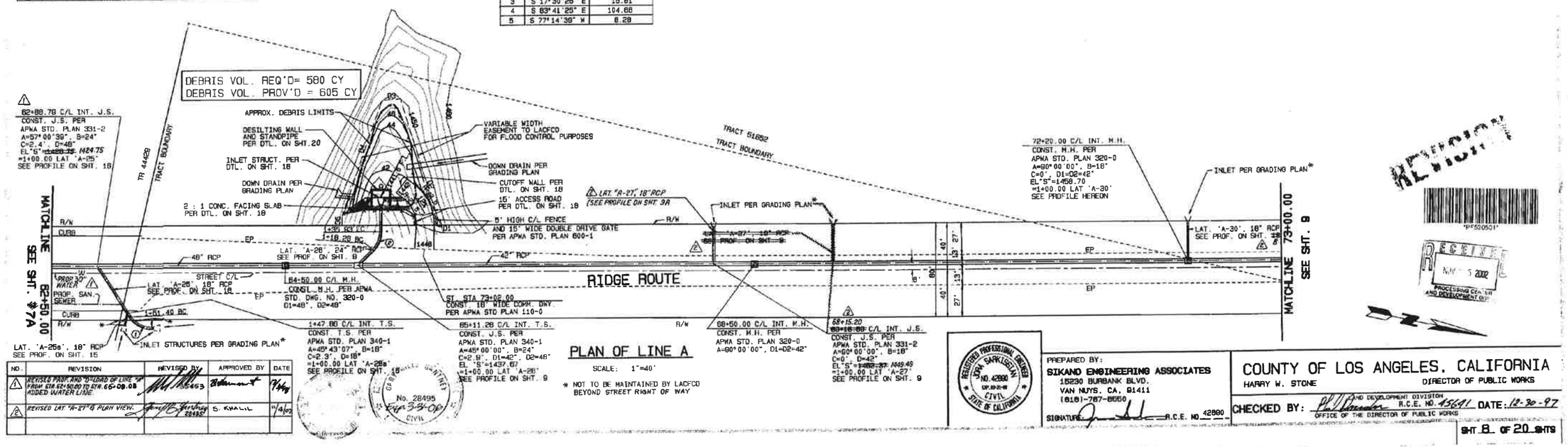
	DELTA	RADIUS	LENGTH	TANGENT
①	56°51'02"	22.50'	23.50'	12.95'
②	49°59'59"	22.50'	17.67	9.32'

EASEMENT CURVE DATA

	DELTA	RADIUS	LENGTH
①	18°45'08"	17.50'	4.81'
②	11°01'26"	27.50'	5.29

EASEMENT DATA

D NO.	BEARING	DISTANCE
1	S 80°06'24" W	5.56
2	S 80°07'21" W	107.74
3	S 17°30'28" E	15.81
4	S 83°41'25" E	104.66
5	S 77°14'39" W	8.28



PLAN OF LINE A

SCALE: 1"=40'

* NOT TO BE MAINTAINED BY LACFCD BEYOND STREET RIGHT OF WAY

NO.	REVISION	REVISED BY	APPROVED BY	DATE
⚠	REVISED PROF. AND "D" LOAD OF LINE "A" FROM STA 62+50.00 TO STA 65+08.03 ADDED WATER LINE.			
⚠	REVISED LAT "A-27" & PLAN VIEW.	S. KHALIL		11/4/02

REGISTERED PROFESSIONAL ENGINEER JOHN SARKISSIAN NO. 42880 EXP. 12-31-98 CIVIL STATE OF CALIFORNIA

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15233 BURBANK BLVD.
VAN NUYS, CA. 91411
(818)-787-8050
SIGNATURE _____ R.C.E. NO. 42880

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE
DIRECTOR OF PUBLIC WORKS

CHECKED BY: _____ LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS
R.C.E. NO. 43691 DATE: 12-30-97

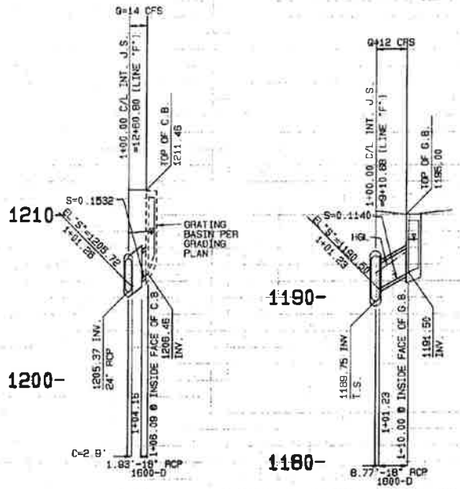
SHT 8 OF 20 SHTS

RECEIVED
NOV 5 2002
PROCESSING CENTER AND DEVELOPMENT SVCS

DRN 335-F41 1-20

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STORM DRAIN PLANS IN
TRACT No. 44429 P.D. No. 2443

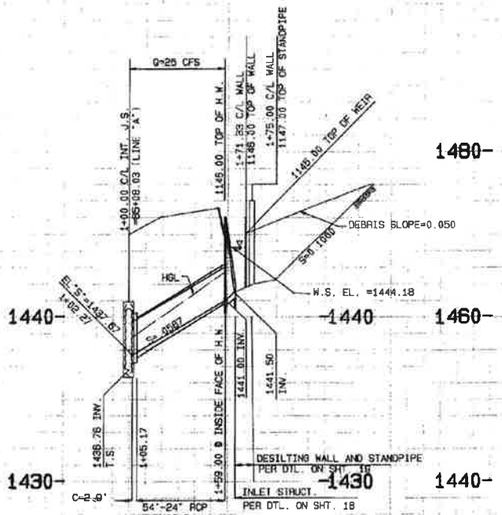


LAT "F-1"

SCALE: HORIZ. 1"=20'
VERT. 1"=4'
(SEE PLAN ON SHEET 18A)

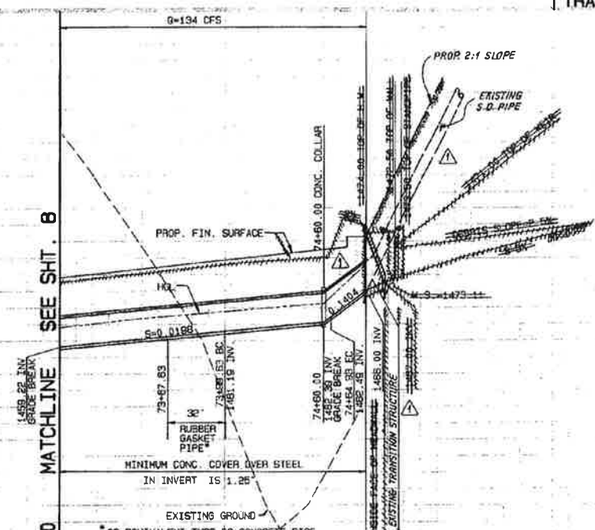
LAT "F-2"

SCALE: HORIZ. 1"=20'
VERT. 1"=4'
(SEE PLAN ON SHEET 18A)



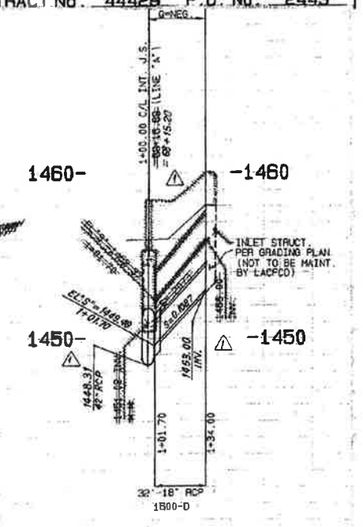
LAT "A-26"

SCALE: HORIZ. 1"=40'
VERT. 1"=4'
(SEE PLAN ON SHEET 8)



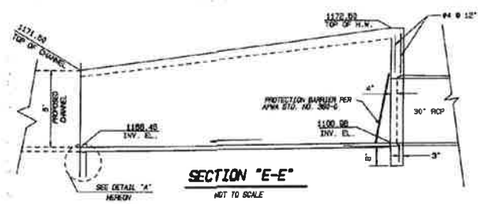
PROFILE OF LINE A

SCALE: 1"=40' HORIZ.
1"=8' VERT.



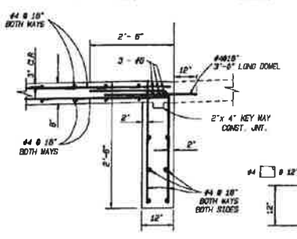
LAT "A-27"

SCALE: HORIZ. 1"=20'
VERT. 1"=4'
(SEE PLAN ON SHEET 8)



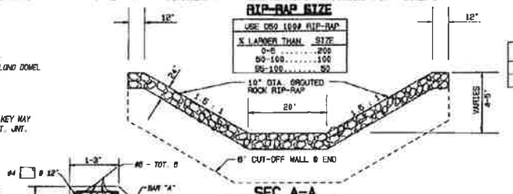
SECTION "E-E"

NOT TO SCALE



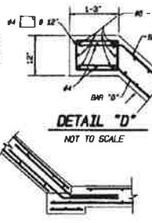
DETAIL "A"

NOT TO SCALE



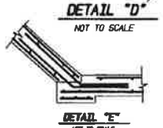
SEC A-A
RIP-RAP DETAIL

NOT TO SCALE
(SEE SHT. 18A FOR PLAN)



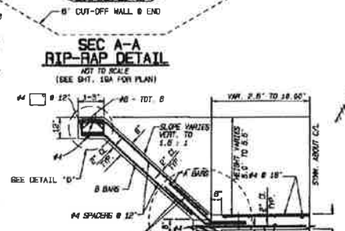
DETAIL "D"

NOT TO SCALE



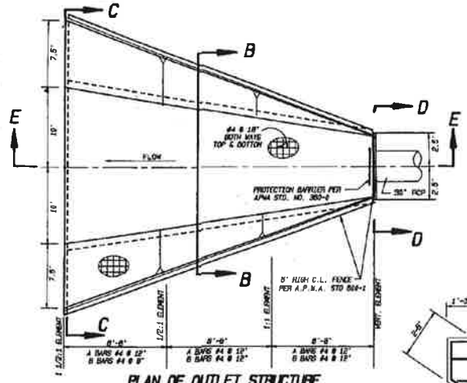
DETAIL "E"

NOT TO SCALE



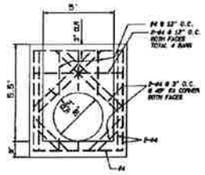
SECTION B-B

NOT TO SCALE



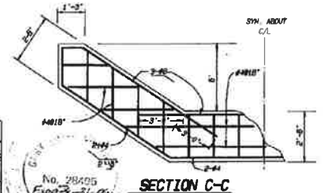
PLAN OF OUTLET STRUCTURE FOR LINE 'F'

NOT TO SCALE



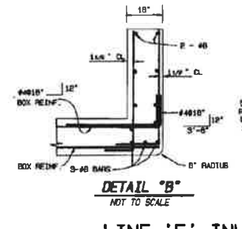
SECTION "D-D"

NOT TO SCALE



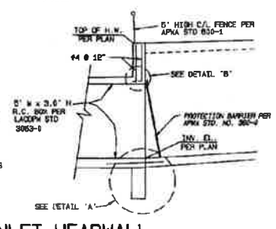
SECTION C-C

NO SCALE



DETAIL "B"

NOT TO SCALE



LINE 'F' INLET HEADWALL

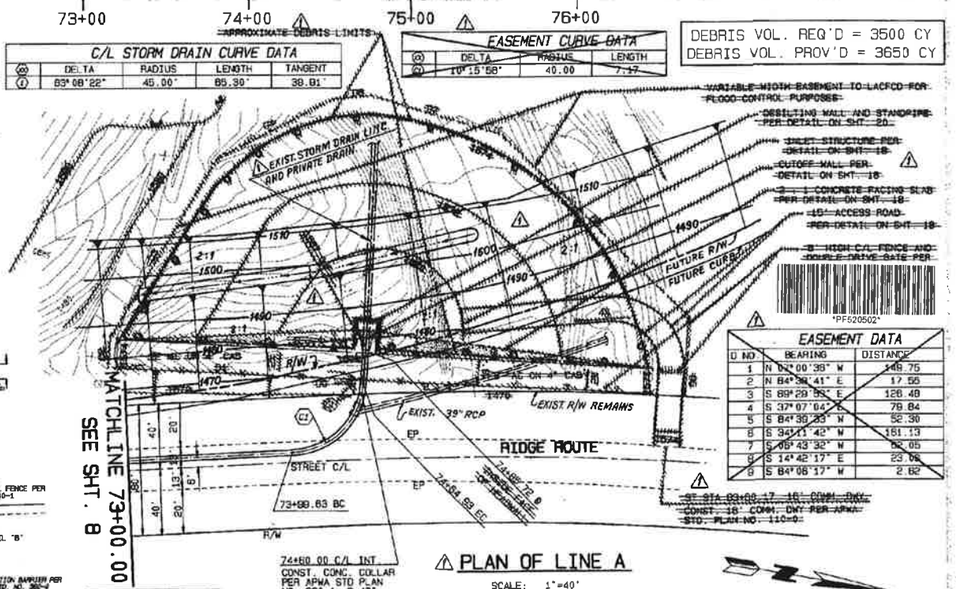
NOT TO SCALE

C/L STORM DRAIN CURVE DATA				
	DELTA	RADIUS	LENGTH	TANGENT
②	63°08'22"	45.00'	69.30'	38.81'

EASEMENT CURVE DATA			
	DELTA	RADIUS	LENGTH
②	10°15'58"	40.00	7.17

DEBRIS VOL. REQ'D = 3500 CY
DEBRIS VOL. PROV'D = 3650 CY

APPROXIMATE DEBRIS LIMITS



EASEMENT DATA		
D NO	BEARING	DISTANCE
1	N 0°00'39" W	149.75
2	N 84°38'41" E	17.55
3	S 89°29'55" E	126.48
4	S 37°07'04" E	79.84
5	S 84°38'25" W	52.38
6	S 34°11'40" W	151.19
7	S 45°43'32" W	82.05
8	S 14°42'17" E	23.06
9	S 84°08'17" W	2.82

9' STA 03+00.17 16' PERM. PKY CONST. 18' COMM. ENT PER APWA STD. PLAN NO. 110-0

PLAN OF LINE A

SCALE: 1"=40'

NO.	REVISION	REVISED BY	APPROVED BY	DATE
⚠	REVISED DEBRIS BASIN & LAT "A-27" REVISED LINE "A" IN PLAN & PROFILE		S. KWAN	4/6/92

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818)-787-8550
SIGNATURE: R.C.E. NO. 29453

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS

CHECKED BY: LAND DEVELOPMENT DIVISION R.C.E. NO. 35691 DATE: 12-7-92
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 9A OF 20 SHTS

Section 5

DPV & Bulking Calculation (Subarea)

VTM No. 73336, Northlake Phase 1

Existing Condition, Design Frequency (50-yr)

Node Number	DPA Zone	Total Area (ac)	$DP_{Tributary\ Area}$ (ac)	$DP_{Tributary\ Area}$ (mi^2)	Bulking Rate	Qb (cfs)	Qbb (cfs)	DP Rate (cy/mi^2)	Subarea DPV (cy)
1A	3	40.9	40.9	0.064	1.620	81.8	132.5	140,000	8,947
2A	3	50.6	50.6	0.079	1.620	111.8	181.1	140,000	11,069
3A	3	48.8	48.8	0.076	1.620	107.8	174.6	140,000	10,675
4A	3	37.8	37.8	0.059	1.620	87.6	141.9	140,000	8,269
5A	3	46.9	46.9	0.073	1.620	98.3	159.2	140,000	10,259
8B	3	55.4	55.4	0.087	1.620	122.4	198.3	140,000	12,119
9B	3	51.0	51.0	0.080	1.620	106.8	173.0	140,000	11,156
11A	3	46.3	46.3	0.072	1.620	92.6	150.0	140,000	10,128
12A	3	46.7	46.7	0.073	1.620	93.4	151.3	140,000	10,216
13A	3	55.0	55.0	0.086	1.620	115.2	186.6	140,000	12,031
14A	3	52.8	52.8	0.083	1.620	110.6	179.2	140,000	11,550
15A	3	52.6	52.6	0.082	1.620	105.2	170.4	140,000	11,506
16A	3	23.5	23.5	0.037	1.620	51.9	84.1	140,000	5,141
19C	3	26.0	26.0	0.041	1.620	68.0	110.2	140,000	5,688
20C	3	48.7	48.7	0.076	1.620	90.1	146.0	140,000	10,653
22A	3	49.7	49.7	0.078	1.620	89.0	144.2	140,000	10,872
25D	3	45.0	45.0	0.070	1.620	94.3	152.8	140,000	9,844
26D	3	31.1	31.1	0.049	1.620	62.2	100.8	140,000	6,803
27D	3	49.3	49.3	0.077	1.620	98.6	159.7	140,000	10,784
28D	3	47.5	47.5	0.074	1.620	87.9	142.4	140,000	10,391
29D	3	29.2	29.2	0.046	1.620	61.2	99.1	140,000	6,388
30D	3	48.6	48.6	0.076	1.620	107.4	174.0	140,000	10,631
31D	3	41.1	41.1	0.064	1.620	78.9	127.8	140,000	8,991
35A	3	41.3	41.3	0.065	1.620	79.3	128.5	140,000	9,034
36A	3	46.4	46.4	0.073	1.620	97.2	157.5	140,000	10,150
37A	3	26.8	26.8	0.042	1.620	59.2	95.9	140,000	5,863
38A	3	64.1	64.1	0.100	1.620	114.8	186.0	140,000	14,022
39A	3	41.6	41.6	0.065	1.620	87.2	141.3	140,000	9,100
42E	5	61.9	61.9	0.097	1.465	103.5	151.6	82,000	7,931
43E	5	50.1	50.1	0.078	1.465	100.2	146.8	82,000	6,419
44E	5	64.4	64.4	0.101	1.465	115.3	168.9	82,000	8,251
46A	5	47.5	47.5	0.074	1.465	91.2	133.6	82,000	6,086
47A	5	38.8	38.8	0.061	1.465	63.0	92.3	82,000	4,971
48A	5	38.8	38.8	0.061	1.465	64.9	95.1	82,000	4,971
49A	5	25.9	25.9	0.040	1.465	63.5	93.0	82,000	3,318
50A	5	68.3	68.3	0.107	1.465	114.2	167.3	82,000	8,751
53F	5	45.6	45.6	0.071	1.465	91.2	133.6	82,000	5,843
54F	5	53.1	53.1	0.083	1.465	95.1	139.3	82,000	6,803
56A	5	46.0	46.0	0.072	1.465	85.1	124.7	82,000	5,894
57A	5	50.8	50.8	0.079	1.465	91.0	133.3	82,000	6,509
60B	5	53.0	53.0	0.083	1.465	86.0	126.0	82,000	6,791
61B	5	38.3	38.3	0.060	1.465	84.6	123.9	82,000	4,907
63A	5	47.7	47.7	0.075	1.465	91.6	134.2	82,000	6,112
64A	5	50.0	50.0	0.078	1.465	104.8	153.5	82,000	6,406
65A	5	45.7	45.7	0.071	1.465	105.9	155.1	82,000	5,855
66A	5	38.3	38.3	0.060	1.465	88.7	129.9	82,000	4,907
OP1	5	4.0	4.0	0.006	1.465	7.9	11.6	82,000	513
OP5	5	2.5	2.5	0.004	1.465	12.6	18.5	82,000	320

Debris Production Calculation

VTM 73336, Northlake Phase 1
Existing Condition

Outlet at Node 66A: DPA Zones 3 and 5for entire watershed boundary
See Appendix P-2:

Subscript 1 =	**DPA 3**				
Subscript 2 =	**DPA 5**				
A1 =	**1,244.7**	ac	=	**1.945**	mi^2
A2 =	**864.2**	ac	=	**1.350**	mi^2
A1+A2=	**2,108.9**	ac	=	**3.295**	mi^2

$DPR1_{(A1+A2)}$ =	**48,000**	cy/mi^2
$DPR1_{(A1)}$ =	**53,000**	cy/mi^2
$DPR2_{(A1+A2)}$ =	**28,500**	cy/mi^2
$DPR2_{(A2)}$ =	**38,000**	cy/mi^2

$DPR1_{(A1+A2)}$ x A1[A1/(A1+A2)] + $DPR1_{(A1)}$ x A1[A2/(A1+A2)] = **97,337** cy

+

$DPR2_{(A1+A2)}$ x A2[A2/(A1+A2)] + $DPR2_{(A2)}$ x A2[A1/(A1+A2)] = **46,055** cy

Total DPV = 143,392 cy

Bulking Calculation

VTM 73336, Northlake Phase 1

Existing Condition

Outlet at Node 66A: DPA Zones 3 and 5for entire watershed boundary

See Appendix P-5:

Subscript 1 =	**DPA 3**				
Subscript 2 =	**DPA 5**				
Q =	**2,899.2**	cfs	(Burned)		
A1 =	**1,244.7**	ac	=	**1.945**	mi^2
A2 =	**864.2**	ac	=	**1.350**	mi^2
A1+A2=	**2,108.9**	ac	=	**3.295**	mi^2
$BF1_{(A1+A2)}$ =	**1.442**				
$BF1_{(A1)}$ =	**1.455**				
$BF2_{(A1+A2)}$ =	**1.325**				
$BF2_{(A2)}$ =	**1.345**				

$BF1_{(A1+A2)}$ x [QA1/(A1+A2)][A1/(A1+A2)] + $BF1_{(A1)}$ x [QA1/(A1+A2)][A2/(A1+A2)] = **2,476.59** cfs

+

$BF2_{(A1+A2)}$ x [QA2/(A1+A2)][A2/(A1+A2)] + $BF2_{(A2)}$ x [QA2/(A1+A2)][A1/(A1+A2)] = **1,588.20** cfs

Burned & Bulked Q = 4,064.78 cfs

DPV & Bulking Calculation (Subarea)

VTM No. 73336, Northlake Phase 1

Proposed Condition, Design Frequency (50 & 25-yr mixed)

Node Number	DPA Zone	Total Area (ac)	$DP_{Tributary\ Area}$ (ac)	$DP_{Tributary\ Area}$ (mi^2)	Bulking Rate	Qb (cfs)	Qbb (cfs)	DP Rate (cy/mi^2)	Subarea DPV (cy)
1A	3	40.9	40.9	0.064	1.620	81.8	132.5	140,000	8,947
2A	3	50.6	50.6	0.079	1.620	111.8	181.1	140,000	11,069
3A	3	48.8	48.8	0.076	1.620	107.8	174.6	140,000	10,675
4A	3	37.8	37.8	0.059	1.620	87.6	141.9	140,000	8,269
5A	3	46.9	46.9	0.073	1.620	98.3	159.2	140,000	10,259
6A	3	225.0	225.0	0.352	1.510	463.3	699.6	82,000	28,828
8B	3	55.4	55.4	0.087	1.620	122.4	198.3	140,000	12,119
9B	3	51.0	51.0	0.080	1.620	106.8	173.0	140,000	11,156
10AB	3	331.4	331.4	0.518	1.490	676.5	1008.0	72,000	37,283
11A	3	46.3	46.3	0.072	1.620	92.6	150.0	140,000	10,128
12A	3	46.7	46.7	0.073	1.620	93.4	151.3	140,000	10,216
13A	3	55.0	55.0	0.086	1.620	115.2	186.6	140,000	12,031
14A	3	52.8	52.8	0.083	1.620	110.6	179.2	140,000	11,550
15A	3	52.6	52.6	0.082	1.620	105.2	170.4	140,000	11,506
16A	3	23.5	23.5	0.037	1.620	51.9	84.1	140,000	5,141
17A	3	608.3	608.3	0.950	1.470	1144.9	1683.0	62,000	58,929
19C	3	26.0	26.0	0.041	1.620	68.0	110.2	140,000	5,688
20C	3	48.7	48.7	0.076	1.620	90.1	146.0	140,000	10,653
22A	3	49.7	49.7	0.078	1.620	89.0	144.2	140,000	10,872
23A	3	732.7	732.7	1.145	1.470	1347.2	1980.4	60,000	68,691
25D	3	45.0	45.0	0.070	1.620	94.3	152.8	140,000	9,844
26D	3	31.1	31.1	0.049	1.620	62.2	100.8	140,000	6,803
27D	3	49.3	49.3	0.077	1.620	98.6	159.7	140,000	10,784
28D	3	47.5	47.5	0.074	1.620	87.9	142.4	140,000	10,391
29D	3	29.2	29.2	0.046	1.620	61.2	99.1	140,000	6,388
30D	3	48.6	48.6	0.076	1.620	107.4	174.0	140,000	10,631
31D	3	41.1	41.1	0.064	1.620	78.9	127.8	140,000	8,991
33A	3	1024.5	1024.5	1.601	1.460	1882.7	2748.7	56,000	89,644
35A	3	41.3	41.3	0.065	1.620	79.3	128.5	140,000	9,034
36A	3	46.4	46.4	0.073	1.620	97.2	157.5	140,000	10,150
37A	3	26.0	26.0	0.041	1.620	57.4	93.0	140,000	5,688
38A	3	64.1	64.1	0.100	1.620	114.8	186.0	140,000	14,022
39A	3	56.1	48.0	0.075	1.620	112.2	171.7	140,000	10,500
40A	3	1258.4	1250.3	1.954	1.495	2140.5	3193.2	53,000	103,540
42E	5	37.8	29.7	0.046	1.465	72.6	99.1	82,000	3,805
43F	5	59.1	56.2	0.088	1.465	102.1	147.2	82,000	7,201
44F	5	52.1	37.3	0.058	1.465	109.2	145.6	82,000	4,779
	5	111.2	111.2	0.174	1.431	211.2	302.2	65,000	11,294
50A	5	10.8	10.8	0.017	1.465	28.2	41.3	82,000	1,384
51A	5	13.3	13.3	0.021	1.465	37.7	55.2	82,000	1,704
52A	5	11.9	11.9	0.019	1.465	37.5	54.9	82,000	1,525
53A	5	15.4	14.5	0.023	1.465	40.3	57.9	82,000	1,858
54A	5	9.7	9.7	0.015	1.465	27.5	40.3	82,000	1,243
55B	5	56.4	27.7	0.043	1.465	130.9	160.8	82,000	3,549
57A	5	20.8	20.8	0.033	1.465	54.4	79.7	82,000	2,665
58A	5	7.0	7.0	0.011	1.465	22.1	32.4	82,000	897
59A	5	9.6	9.6	0.015	1.465	30.3	44.4	82,000	1,230
60A	5	4.2	4.2	0.007	1.465	11.0	16.1	82,000	538
61A	5	44.3	44.3	0.069	1.465	92.8	136.0	82,000	5,676
62A	5	37.9	37.9	0.059	1.465	83.7	122.6	82,000	4,856
102A	5	16.0	16.0	0.025	1.465	51.4	75.3	82,000	2,050

DPV & Bulking Calculations (Junction & Outlet)

VTM 73336, Northlake Phase 1

Proposed Condition, Design Frequency (50- & 25-yr Mixed)

Pre-RETARDING

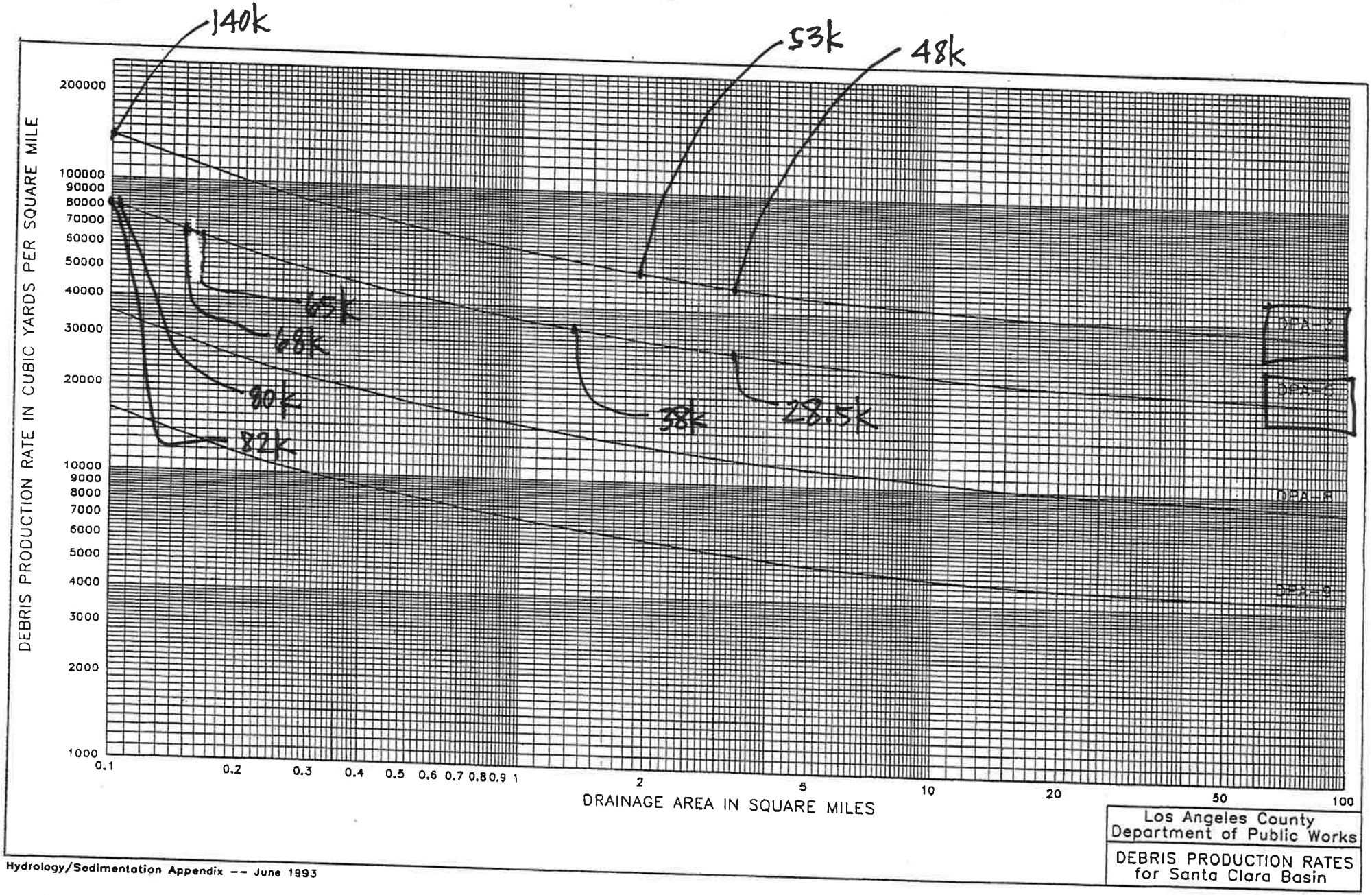
Junction Number	ΣQ_{BURN} (cfs)	ΣA (ac)	ΣA (mi^2)	Au (ac)	Au (mi^2)	Ad (ac)	Ad (mi^2)	$BF1_A$	$BF1_{Au}$	ΣQbb (cfs)	DP Rate (cy/mi^2)	DPV (cy)
102A/Outlet	2906.1	2157.3	3.371	16.0	0.025	2141.3	3.346	1.325	1.465	2916.1	82,000	2,050

Post-RETARDING

Junction Number	ΣQ_{BURN} (cfs)	ΣA (ac)	ΣA (mi^2)	Au (ac)	Au (mi^2)	Ad (ac)	Ad (mi^2)	$BF1_A$	$BF1_{Au}$	ΣQbb (cfs)	DP Rate (cy/mi^2)	DPV (cy)
102A/Outlet	2730.5	2157.3	3.371	16.0	0.025	2141.3	3.346	1.325	1.465	2739.9	82,000	2,050

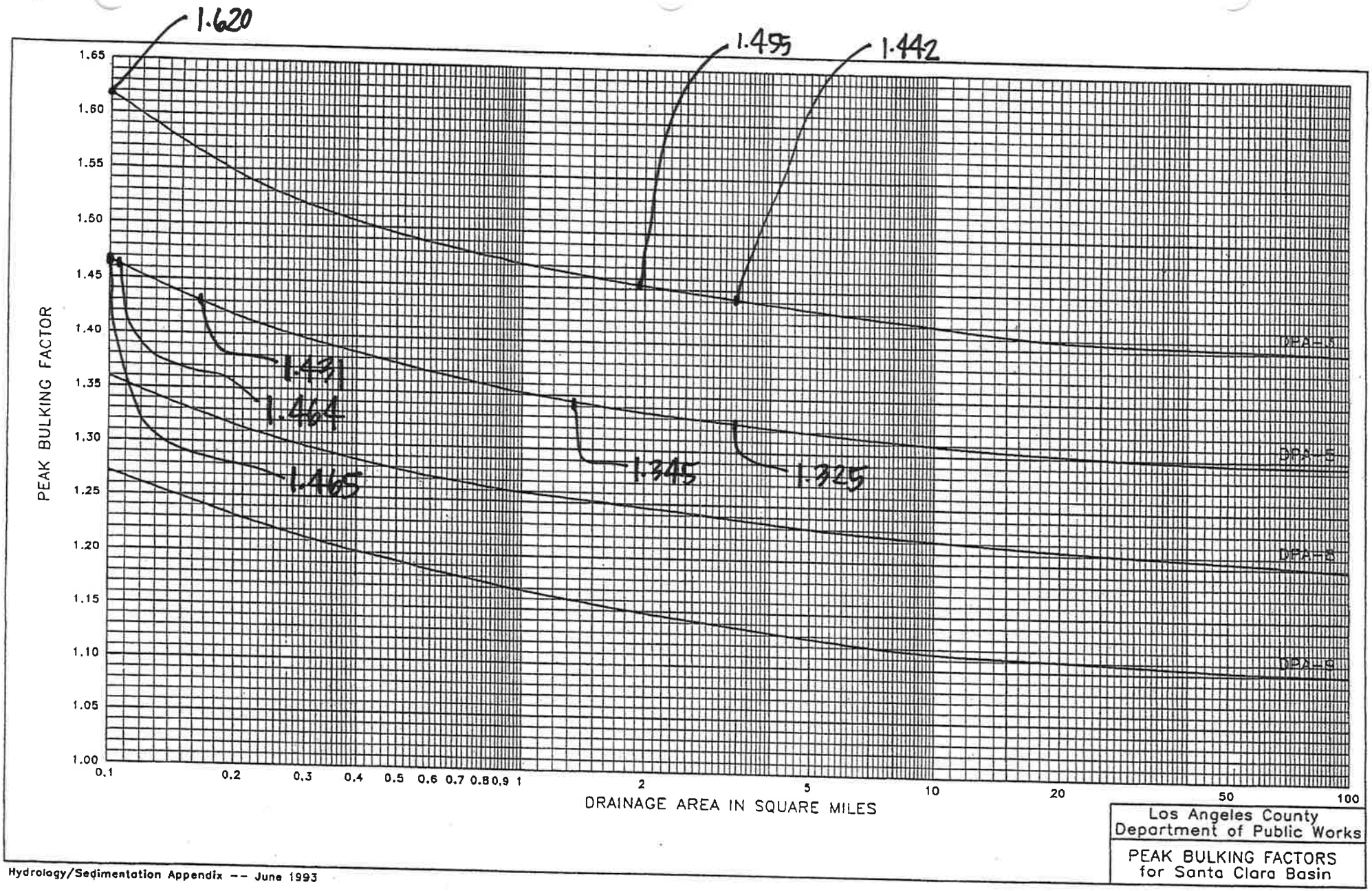
Legend:

ΣQ_{BURN}	---	Burned Flow Rate, cfs
A	---	Total Area, ac
Au	---	Undeveloped Area, ac
Ad	---	Developed Area, ac
$BF1_A$	---	Bulking Factor for **A** (See Chart P-5)
$BF1_{Au}$	---	Bulking Factor for **Au** (See Chart P-5)
Qbb	---	Burned & Bulked Flow Rate, cfs (for DPA Zone 5)
		Qbb = $BF1_A$ x [QaxAu/A][Au/A)] + $BF1_{Au}$ x [QaxAu/A)][Ad/A] + [QaxAd/A]
DP Rate	---	Debris Production Rate for **Au**, cy/mi^2 (See Chart P-2)
DPV	---	Debris Production Volume, cy
		DPV = Au x DP Rate



Los Angeles County
Department of Public Works

DEBRIS PRODUCTION RATES
for Santa Clara Basin



Los Angeles County
Department of Public Works

PEAK BULKING FACTORS
for Santa Clara Basin

Debris Basin Volume Calculation

VTM 73336, Northlake Phase 1
Proposed Condition

Node 39A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1592	-	-	-	-
1593	41,220	20,610	763	763
1594	87,700	64,460	2,387	3,151
1598	220,040	615,480	22,796	25,946
1602	360,200	1,160,480	42,981	68,927
1605	466,689	1,240,334	45,938	114,865

Debris Production Volume Required (c.y.) = **103,540**
Basin Capacity Provided (c.y.) = **114,865**
Debris Cone Elevation = **1,600.5**

Elevation	Volume
1602	68927
X	103540
1605	1605
X=	**1600.5**

Node 42E

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1775	-	-	-	-
1776	5,086	2,543.00	94	94
1778	23,969	29,055.00	1,076	1,170
1780	27,600	51,569.00	1,910	3,080
1782	31,394	58,994.00	2,185	5,265

Debris Production Volume Required (c.y.) = **3,805**
Basin Capacity Provided (c.y.) = **5,265**
Debris Cone Elevation = **1,780.7**

Elevation	Volume
1780	3080
X	3805
1782	5265
X=	**1780.7**

Node 44F

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1717	-	-	-	-
1720	57,869	86,803.50	3,215	3,215
1724	73,453	262,644.00	9,728	12,943

Debris Production Volume Required (c.y.) = **11,294**
Basin Capacity Provided (c.y.) = **12,943**
Debris Cone Elevation = **1,723.3**

Elevation	Volume
1720	3215
X	11294
1724	12943
X=	**1723.3**

Node 50A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1576	-	-	-	-
1577	5,190	2,595.00	96	96
1578	12,650	8,920.00	330	426
1579	14,200	13,425.00	497	924
1580	16,100	15,150.00	561	1,485
1583	20,970	55,605.00	2,059	3,544

Debris Production Volume Required (c.y.) = **1,384**
Basin Capacity Provided (c.y.) = **3,544**
Debris Cone Elevation = **1,579.8**

Elevation	Volume
1579	924
X	1384
1580	1485
X=	**1579.8**

Node 51A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1555.5	-	-	-	-
1556	3,075	768.75	28	28
1557	7,770	5,422.50	201	229
1558	11,850	9,810.00	363	593
1560	14,435	26,285.00	974	1,566
1562	16,650	31,085.00	1,151	2,717

Debris Production Volume Required (c.y.) = **1,704**
Basin Capacity Provided (c.y.) = **2,717**
Debris Cone Elevation = **1,560.2**

Elevation	Volume
1560	1566
X	1704
1562	2717
X=	**1560.2**

Node 52A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1529.5	-	-	-	-
1530	480	120.00	4	4
1531	2,340	1,410.00	52	57
1532	6,085	4,212.50	156	213
1534	7,640	13,725.00	508	721
1536	9,880	17,520.00	649	1,370
1536.5	11,740	5,405.00	200	1,570

Debris Production Volume Required (c.y.) = **1,525**
Basin Capacity Provided (c.y.) = **1,570**
Debris Cone Elevation = **1,536.4**

Elevation	Volume
1536	1370
X	1525
1537	1570
X=	**1536.4**

Node 53A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1493	-	-	-	-
1494	5,980	2,990.00	111	111
1495	11,440	8,710.00	323	433
1496	13,040	12,240.00	453	887
1498	15,900	28,940.00	1,072	1,959
1499	18,770	17,335.00	642	2,601

Debris Production Volume Required (c.y.) = **1,858**
Basin Capacity Provided (c.y.) = **2,601**
Debris Cone Elevation = **1,497.8**

Elevation	Volume
1496	887
X	1858
1498	1959
X=	**1497.8**

Node 54A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1482	-	-	-	-
1484	19,920	19,920.00	738	738
1486	29,100	49,020.00	1,816	2,553
1488	30,058	59,158.00	2,191	4,744

Debris Production Volume Required (c.y.) = **1,243**
Basin Capacity Provided (c.y.) = **4,744**
Debris Cone Elevation = **1,484.6**

Elevation	Volume
1484	738
X	1243
1486	2553
X=	**1484.6**

Node 55B

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1556	-	-	-	-
1558	28,150	28,150.00	1,043	1,043
1560	48,940	77,090.00	2,855	3,898

Debris Production Volume Required (c.y.) = **3,549**
Basin Capacity Provided (c.y.) = **3,898**
Debris Cone Elevation = **1,559.8**

Elevation	Volume
1558	1043
X	3549
1560	3898
X=	**1559.8**

Node 57A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1513	-	-	-	-
1514	6,440	3,220.00	119	119
1516	17,100	23,540.00	872	991
1518	20,860	37,960.00	1,406	2,397
1520	24,400	45,260.00	1,676	4,073

Debris Production Volume Required (c.y.) = **2,665**
Basin Capacity Provided (c.y.) = **4,073**
Debris Cone Elevation = **1,518.3**

Elevation	Volume
1518	2397
X	2665
1520	4073
X=	**1518.3**

Node 58A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1416.5	-	-	-	-
1417	2,130	532.50	20	20
1418	8,100	5,115.00	189	209
1420	9,890	17,990.00	666	875
1422	12,020	21,910.00	811	1,687

Debris Production Volume Required (c.y.) = **897**
Basin Capacity Provided (c.y.) = **1,687**
Debris Cone Elevation = **1,420.1**

Elevation	Volume
1420	875
X	897
1422	1687
X=	**1420.1**

Node 59A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1421	-	-	-	-
1422	4,043	2,021.50	75	75
1424	9,900	13,943.00	516	591
1426	14,900	24,800.00	919	1,510

Debris Production Volume Required (c.y.) = **1,230**
Basin Capacity Provided (c.y.) = **1,510**
Debris Cone Elevation = **1,425.4**

Elevation	Volume
1424	591
X	1230
1426	1510
X=	**1425.4**

Node 60A

Elevation	Area (ft^2)	Volume		Capacity (cy)
		(ft^3)	(cy)	
1285	-	-	-	-
1286	13,733	6,866.50	254	254
1287	17,590	15,661.50	580	834
		Debris Production Volume Required (c.y.) =		**538**
		Basin Capacity Provided (c.y.) =		**834**
		Debris Cone Elevation =		**1,286.5**

Elevation	Volume
1286	254
X	538
1287	834
X=	**1286.5**

Node 61A

Elevation	Area (ft^2)	Volume		Capacity (cy)
		(ft^3)	(cy)	
1276	-	-	-	-
1278	19,576	19,576.00	725	725
1284	28,341	143,751.00	5,324	6,049
		Debris Production Volume Required (c.y.) =		**5,676**
		Basin Capacity Provided (c.y.) =		**6,049**
		Debris Cone Elevation =		**1,283.6**

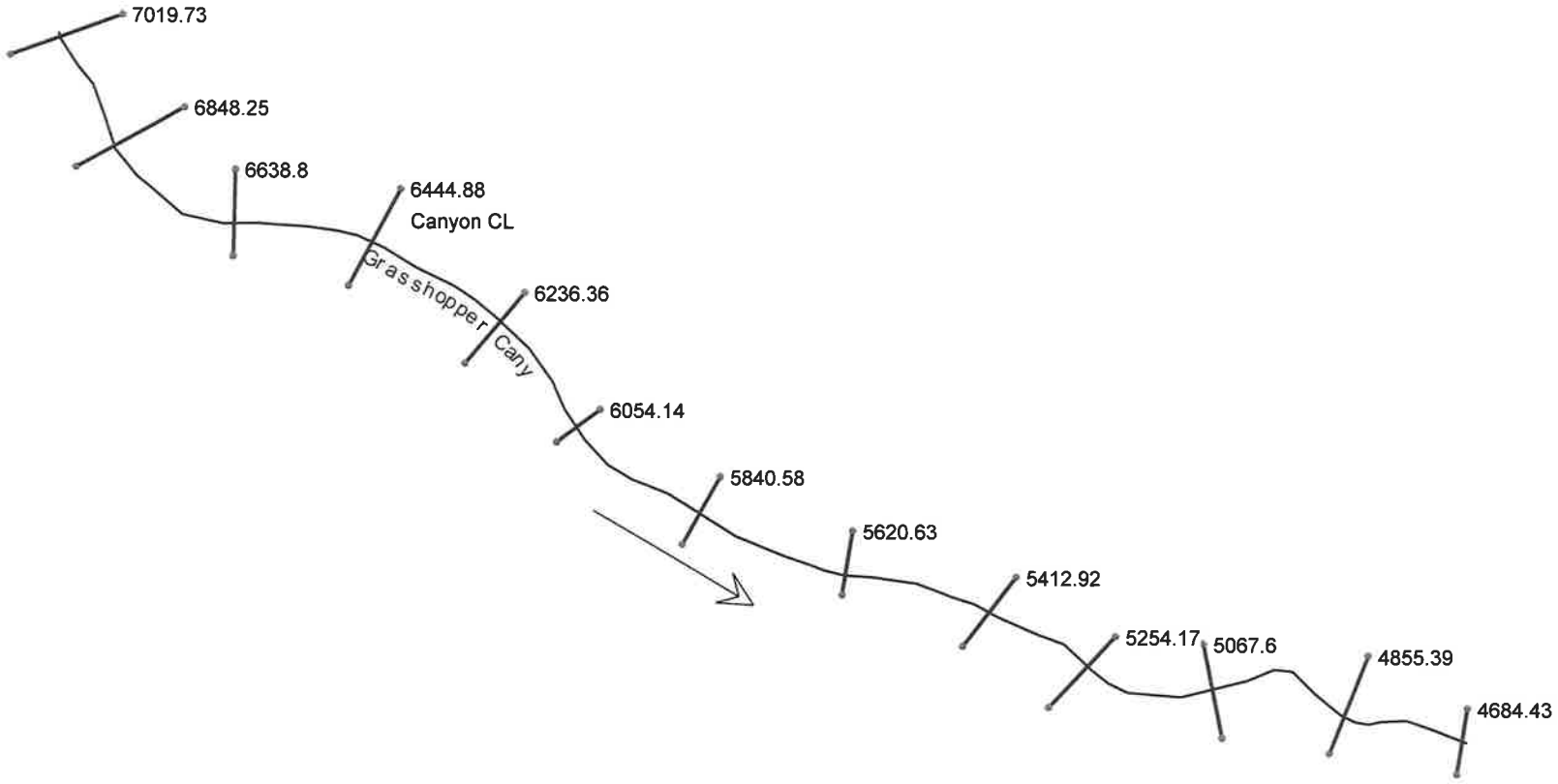
Elevation	Volume
1278	725
X	5676
1284	6049
X=	**1283.6**

Node 62A

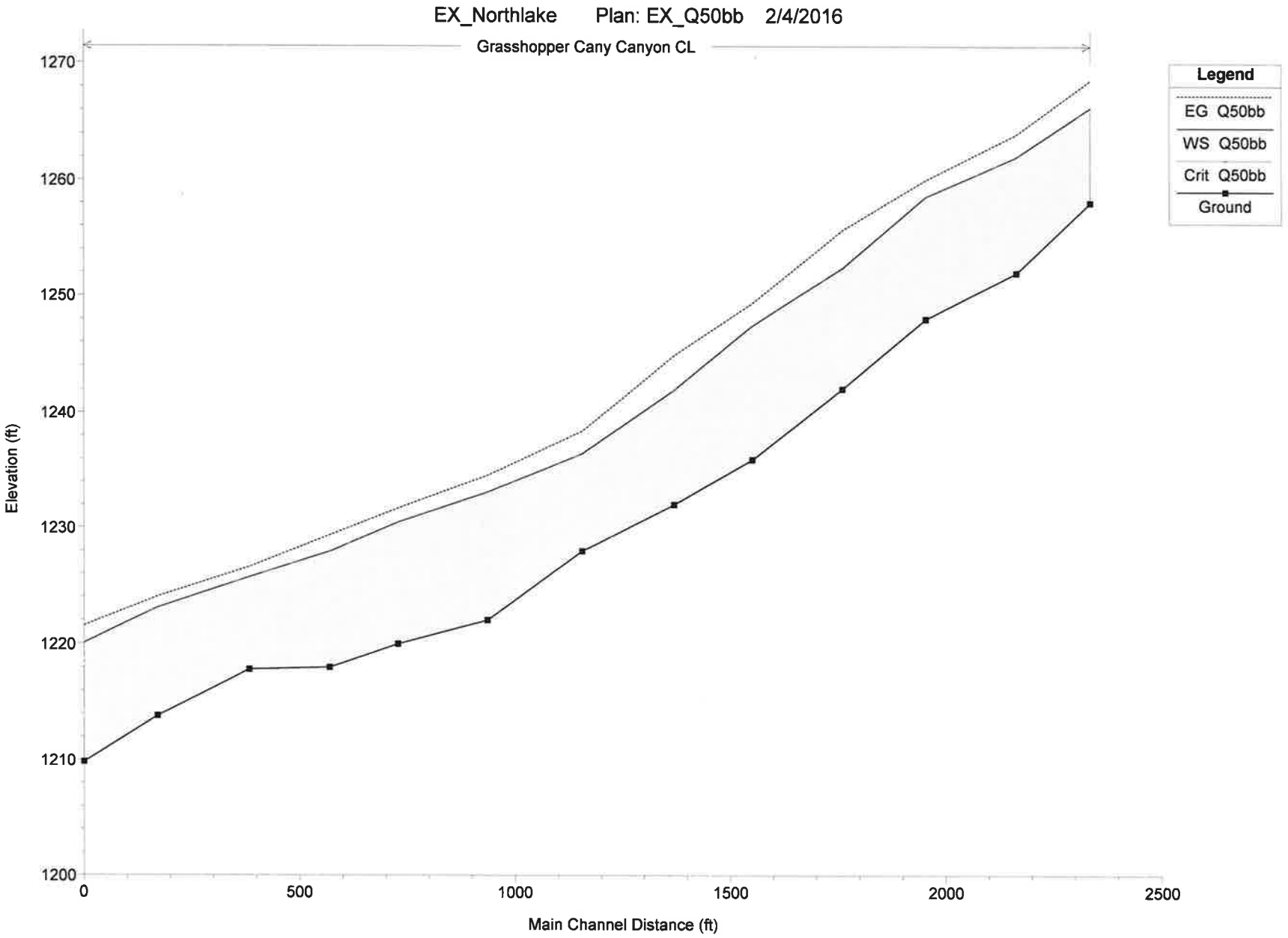
Elevation	Area (ft^2)	Volume		Capacity (cy)
		(ft^3)	(cy)	
1245	-	-	-	-
1246	20,600	10,300.00	381	381
1252	28,451	147,153.00	5,450	5,832
		Debris Production Volume Required (c.y.) =		**4,856**
		Basin Capacity Provided (c.y.) =		**5,832**
		Debris Cone Elevation =		**1,251.3**

Elevation	Volume
1246	381
X	4856
1252	5450
X=	**1251.3**

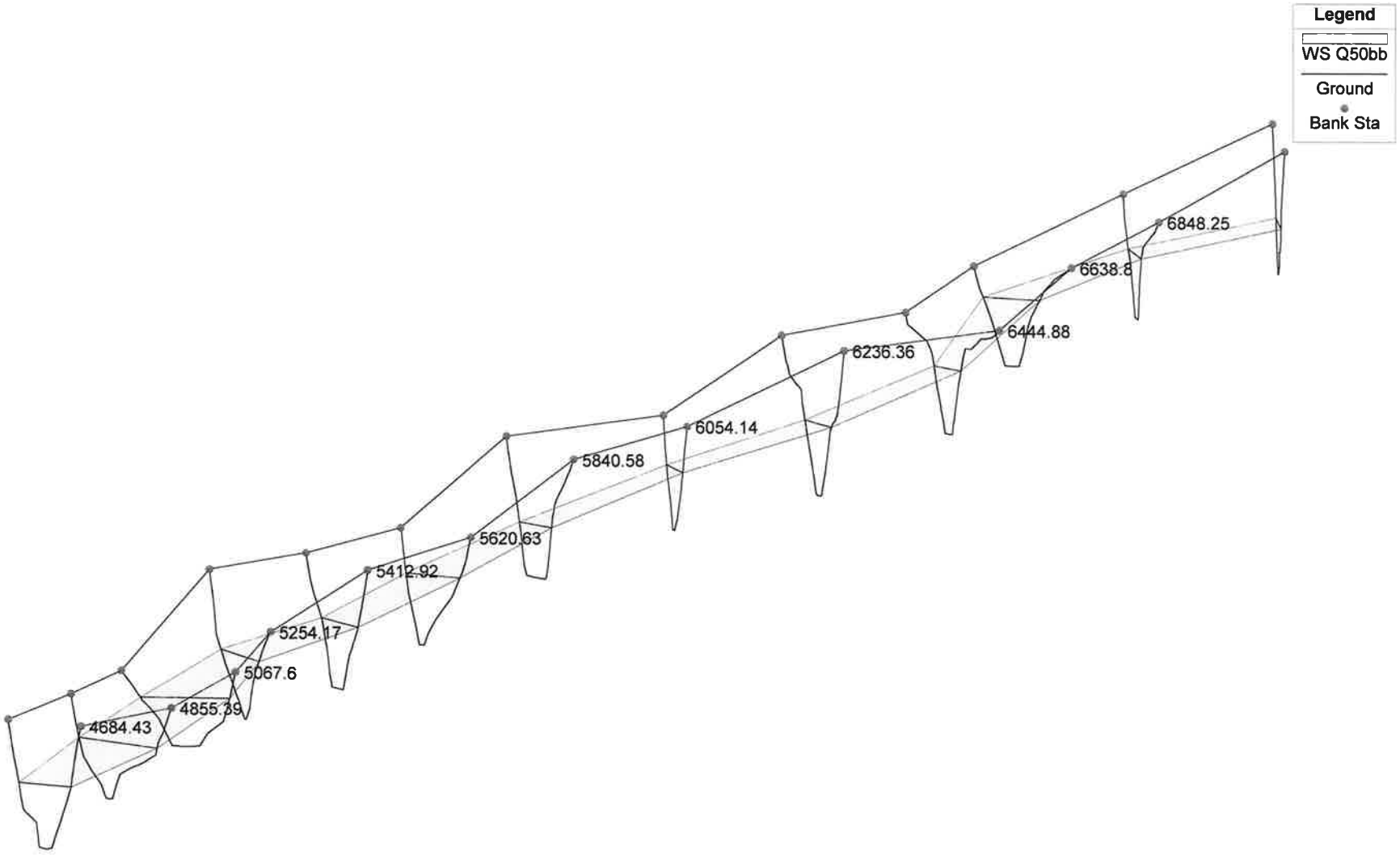
Section 6



EXISTING CONDITION

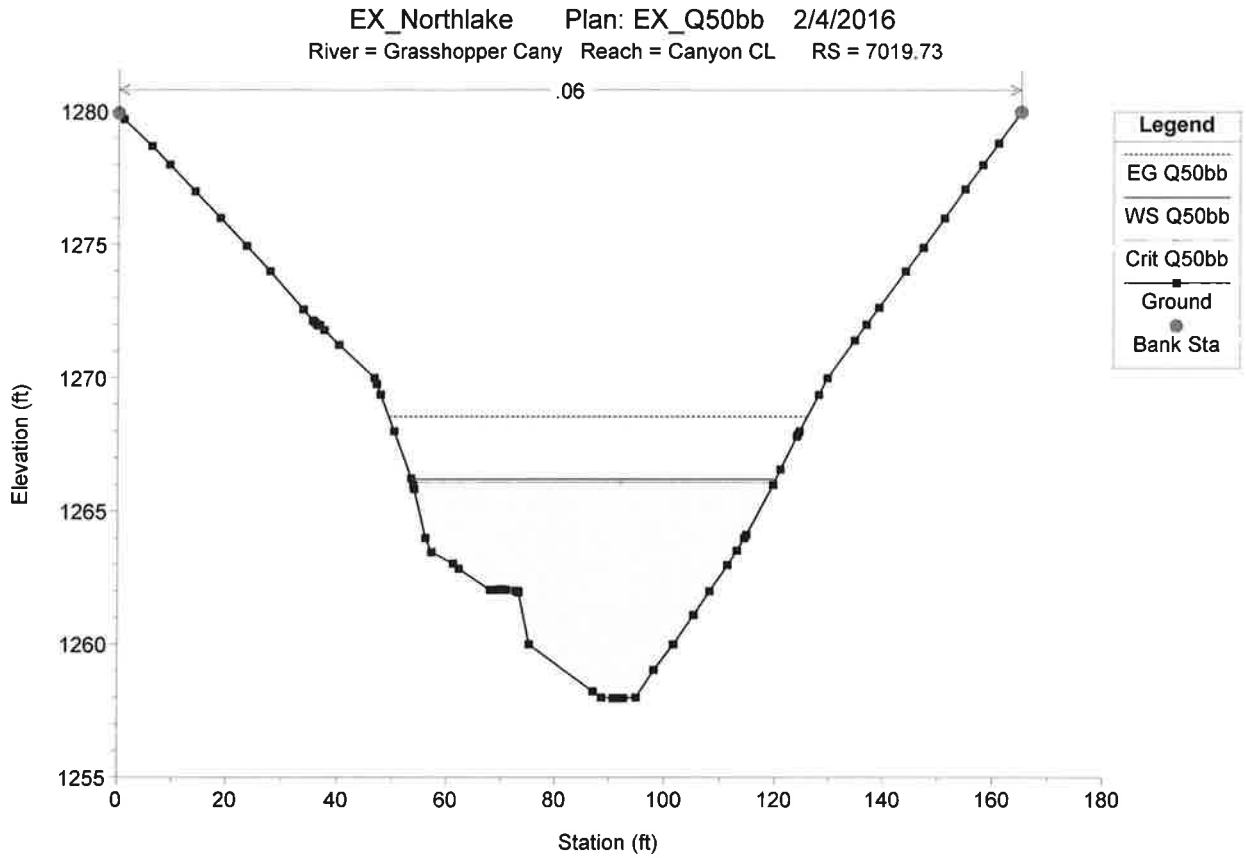

EX_Northlake Plan: EX_Q50bb 2/4/2016
Grasshopper Cany Canyon CL
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Elevation (ft)
1270
1260
1250
1240
1230
1220
1210
1200
0
500
1000
1500
2000
2500
Main Channel Distance (ft)

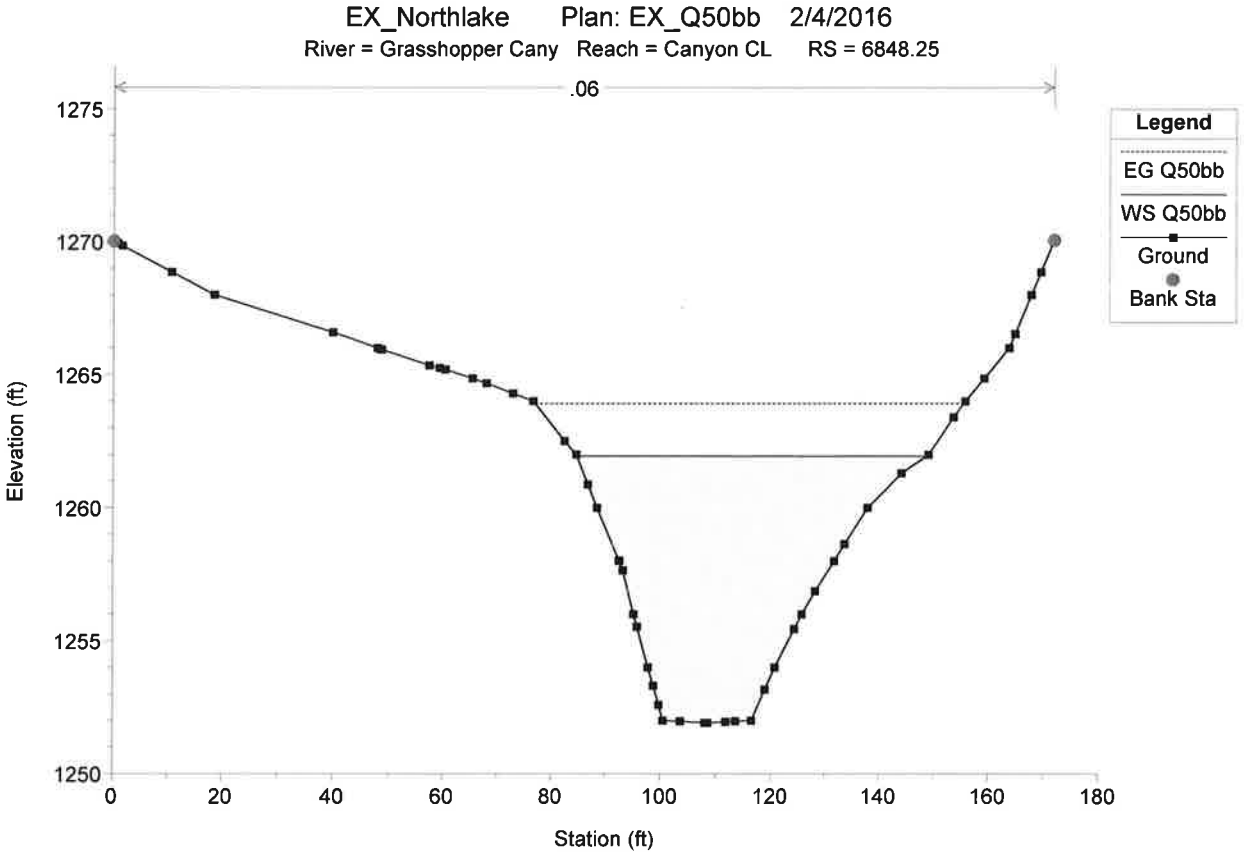
EX_Northlake Plan: EX_Q50bb 2/4/2016

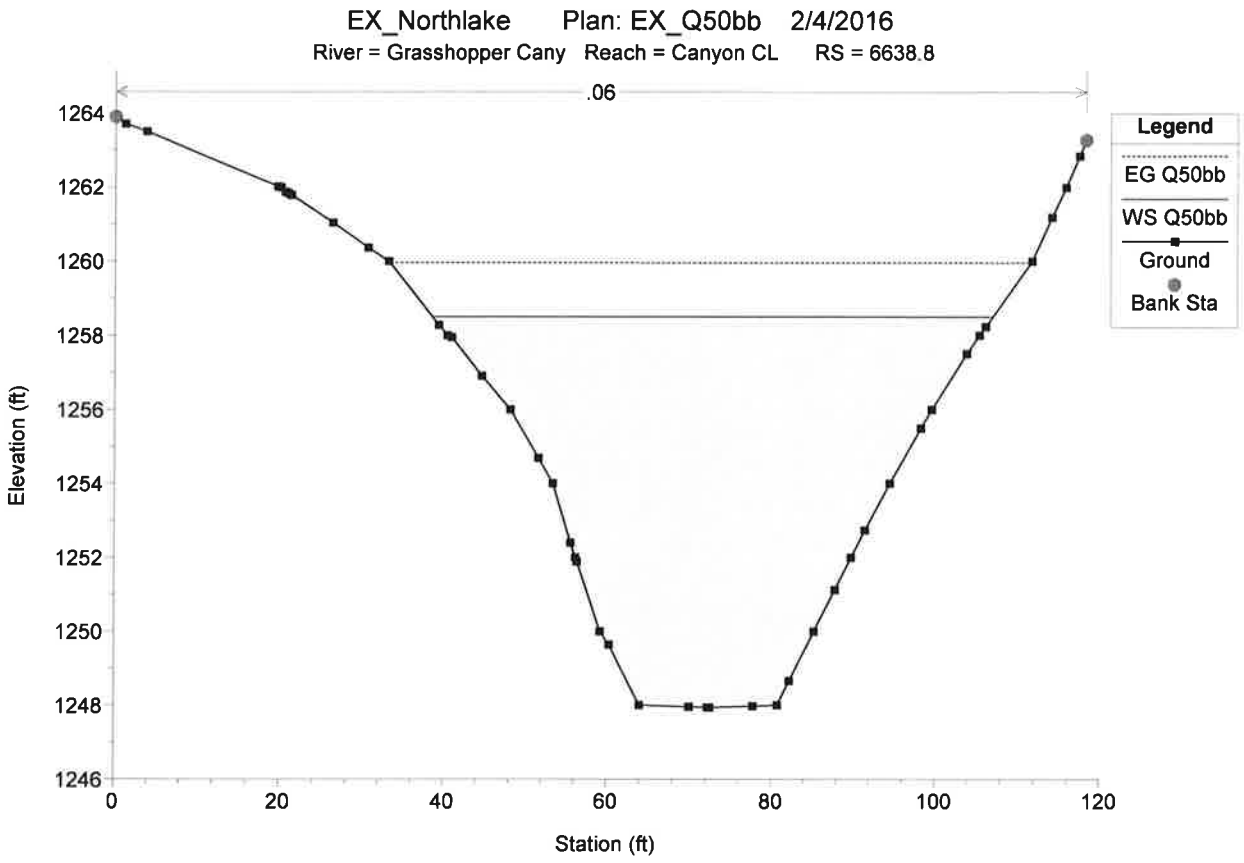


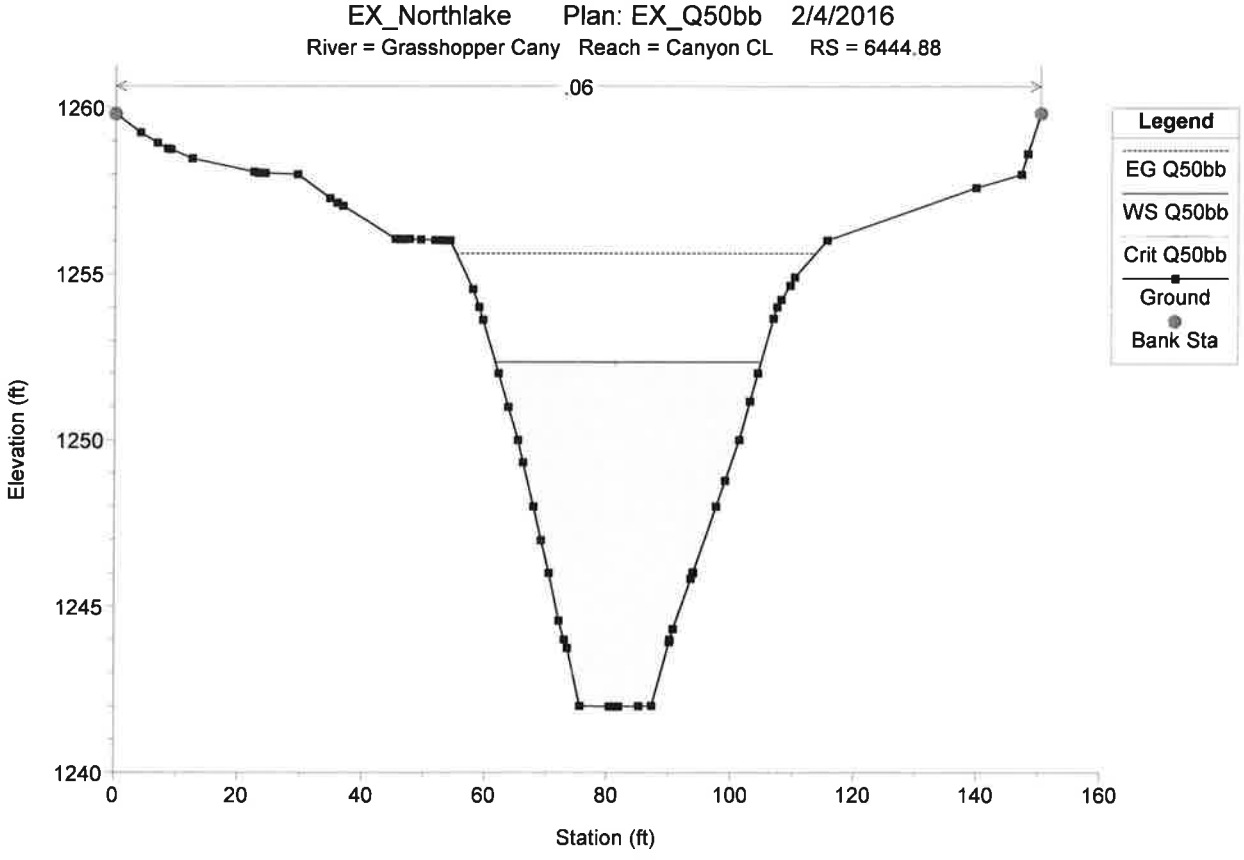
HEC-RAS Plan: EX_Q50bb River: Grasshopper Cany Reach: Canyon CL Profile: Q50bb

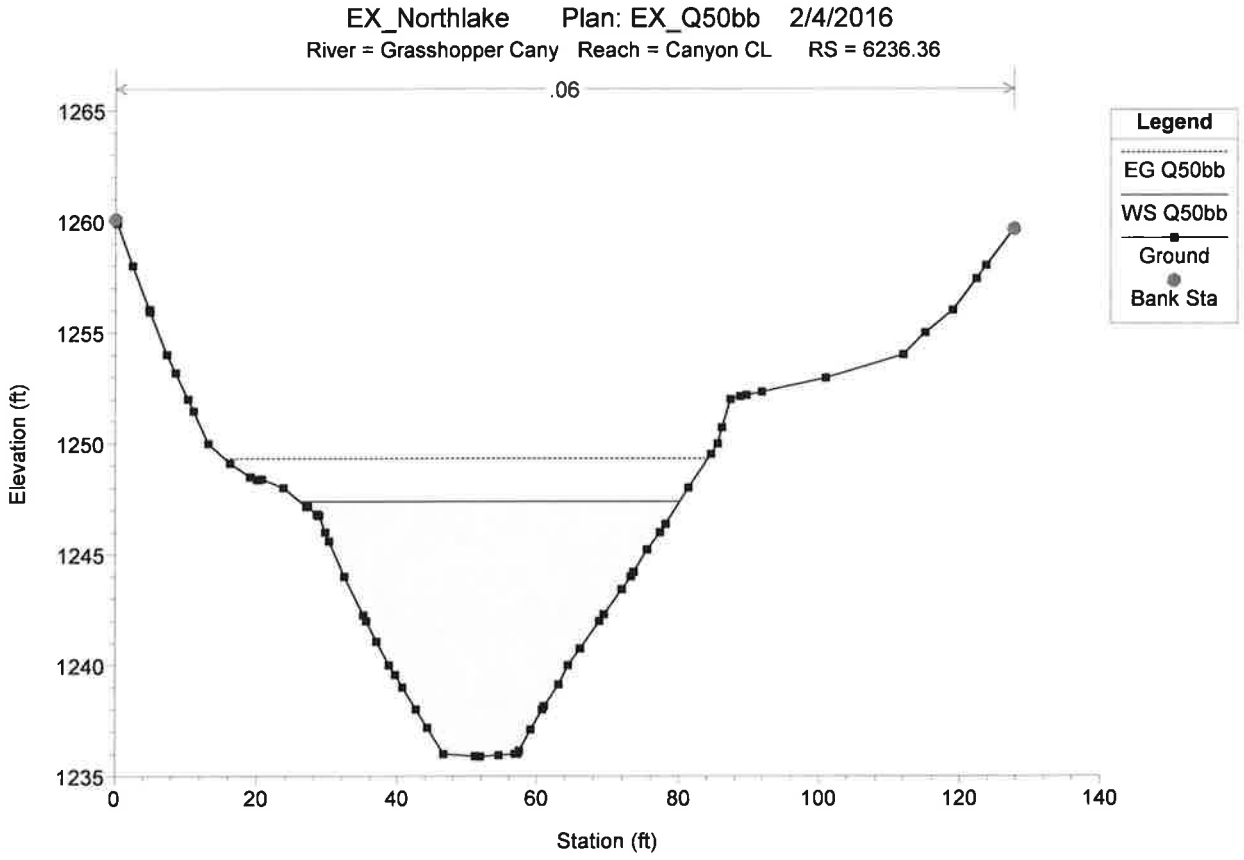
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Canyon CL	7019.73	Q50bb	4064.80	1257.97	1266.20	1266.09	1268.54	0.031074	12.29	330.62	66.63	0.97
Canyon CL	6848.25	Q50bb	4064.80	1251.91	1261.94		1263.91	0.022616	11.27	360.55	63.85	0.84
Canyon CL	6638.8	Q50bb	4064.80	1247.94	1258.50		1259.96	0.014873	9.70	419.04	68.41	0.69
Canyon CL	6444.88	Q50bb	4064.80	1241.98	1252.34	1252.34	1255.60	0.033919	14.50	280.29	43.15	1.00
Canyon CL	6236.36	Q50bb	4064.80	1235.88	1247.39		1249.32	0.018201	11.14	364.88	54.10	0.76
Canyon CL	6054.14	Q50bb	4064.80	1231.96	1241.91	1241.91	1244.85	0.032975	13.75	295.69	50.77	1.00
Canyon CL	5840.58	Q50bb	4064.80	1227.93	1236.38		1238.36	0.018187	11.28	360.22	51.68	0.75
Canyon CL	5620.63	Q50bb	4064.80	1222.00	1233.06		1234.53	0.015432	9.75	416.75	69.01	0.70
Canyon CL	5412.92	Q50bb	4064.80	1219.99	1230.43		1231.67	0.011811	8.92	455.75	70.91	0.62
Canyon CL	5254.17	Q50bb	4064.80	1218.00	1227.91		1229.35	0.018246	9.62	422.50	83.81	0.76
Canyon CL	5067.6	Q50bb	4064.80	1217.84	1225.69		1226.59	0.010948	7.63	533.06	103.53	0.59
Canyon CL	4855.39	Q50bb	4064.80	1213.80	1223.08		1224.03	0.013355	7.82	520.02	112.74	0.64
Canyon CL	4684.43	Q50bb	4064.80	1209.82	1220.07	1218.49	1221.55	0.015005	9.78	415.55	66.45	0.69

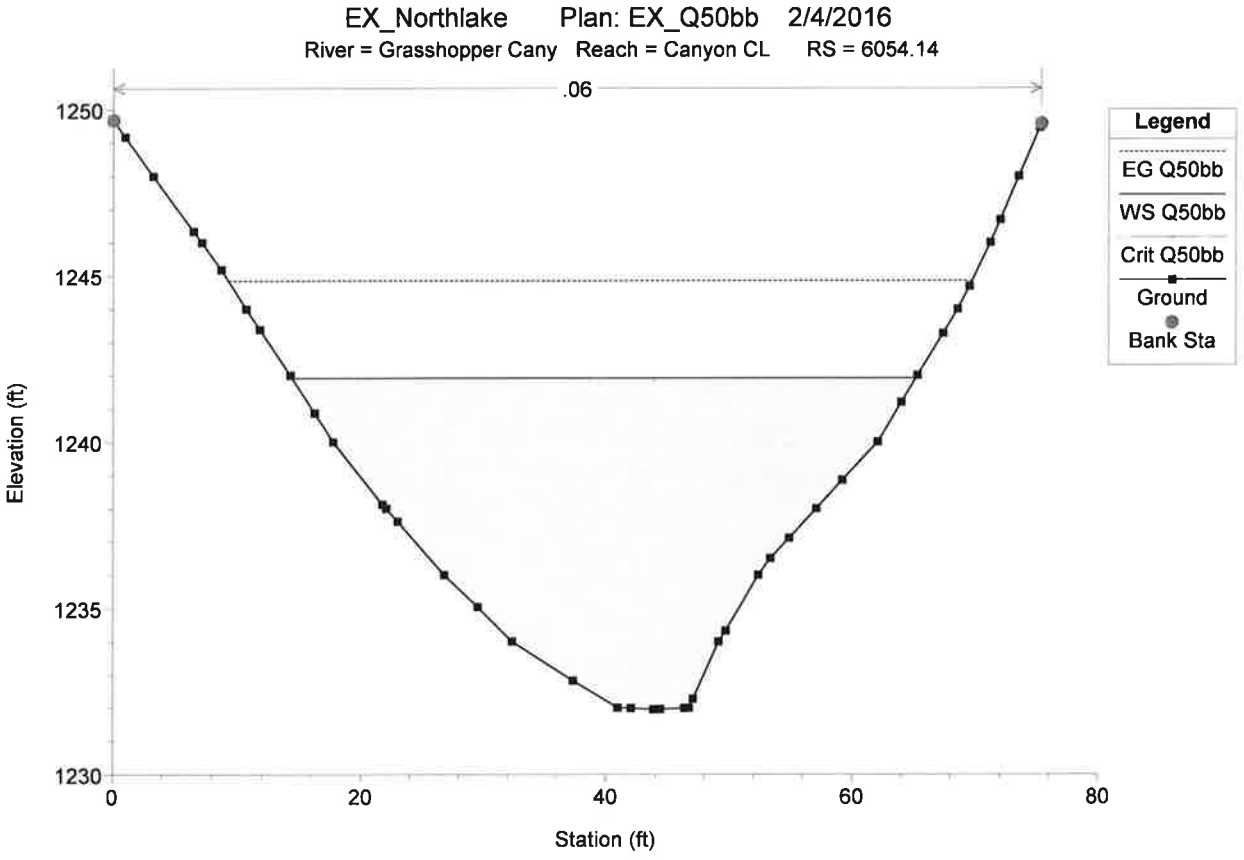

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 7019.73
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1280
1275
1270
1265
1260
1255
0
20
40
60
80
100
120
140
160
180

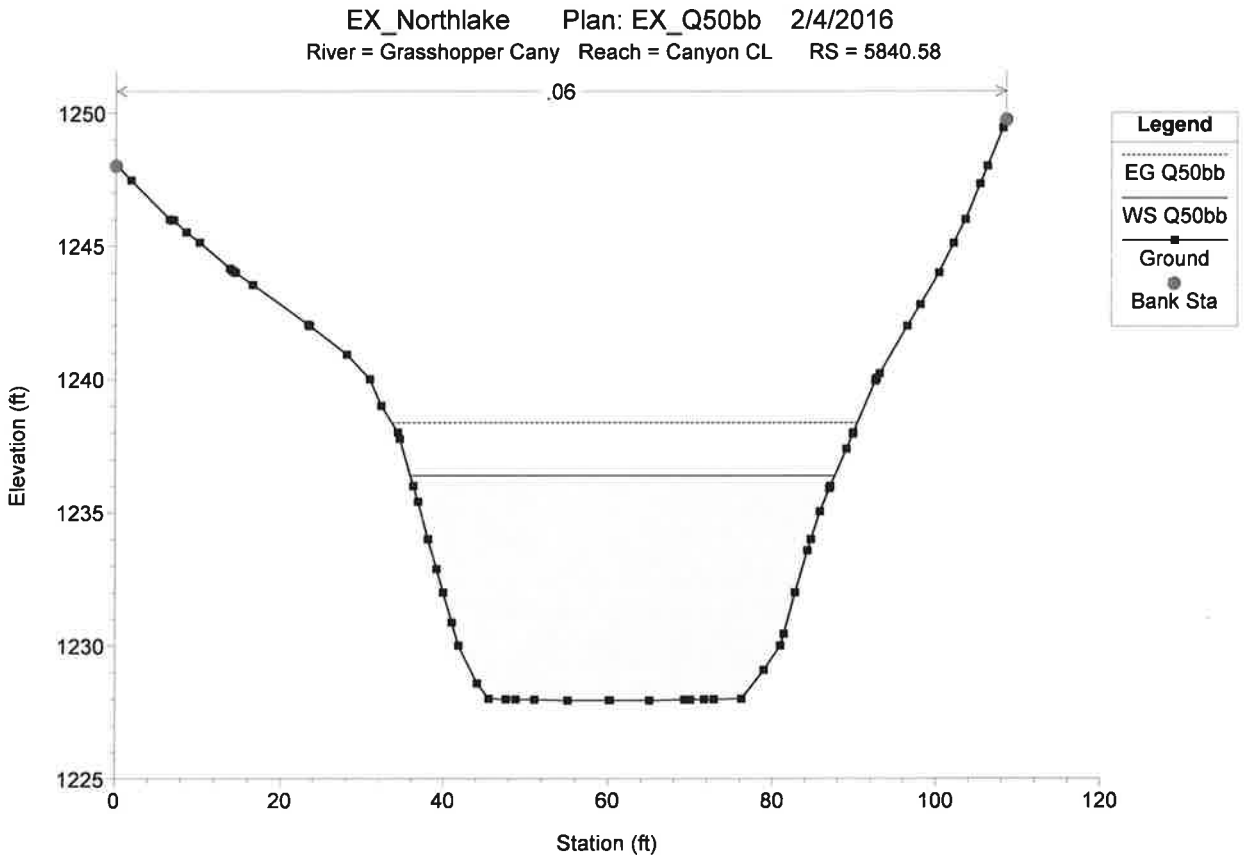

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6848.25
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1275
1270
1265
1260
1255
1250
0
20
40
60
80
100
120
140
160
180

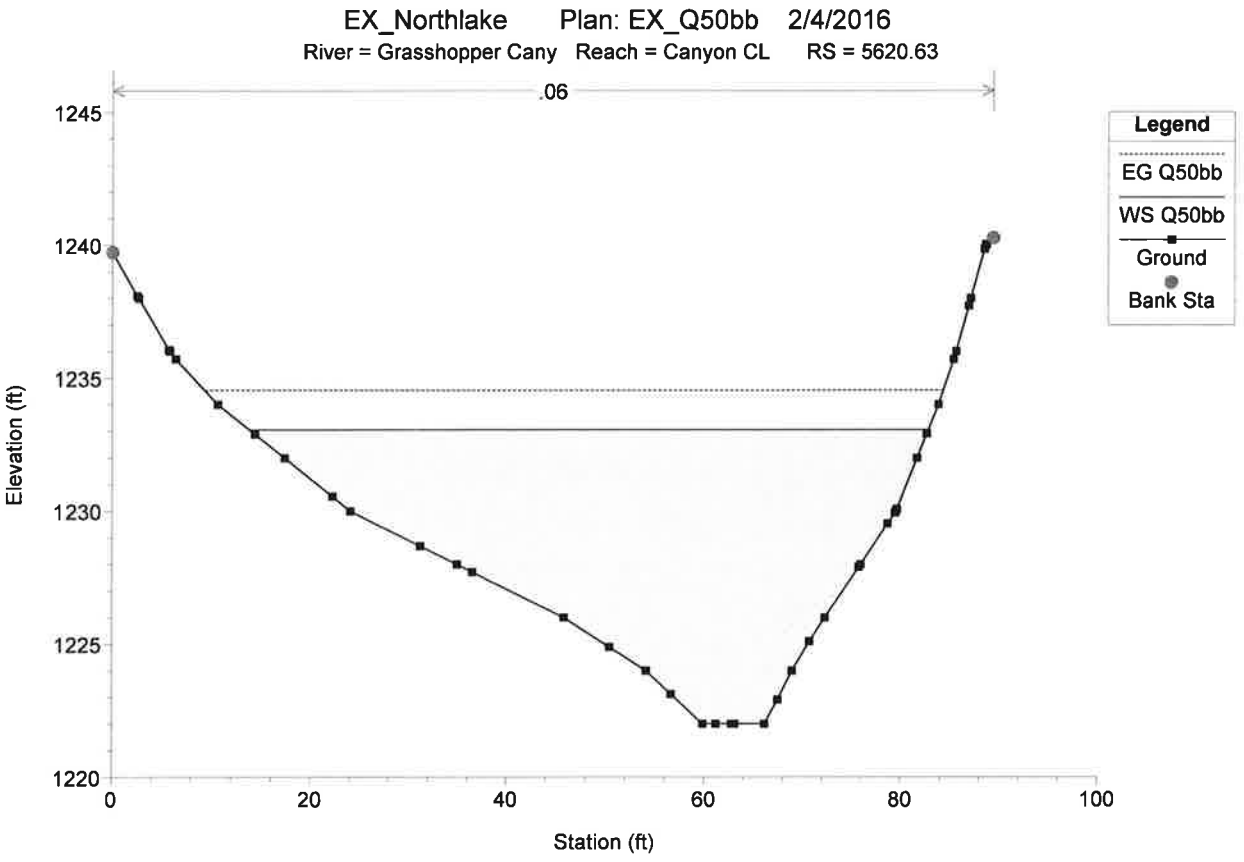

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6638.8
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1264
1262
1260
1258
1256
1254
1252
1250
1248
1246
0
20
40
60
80
100
120

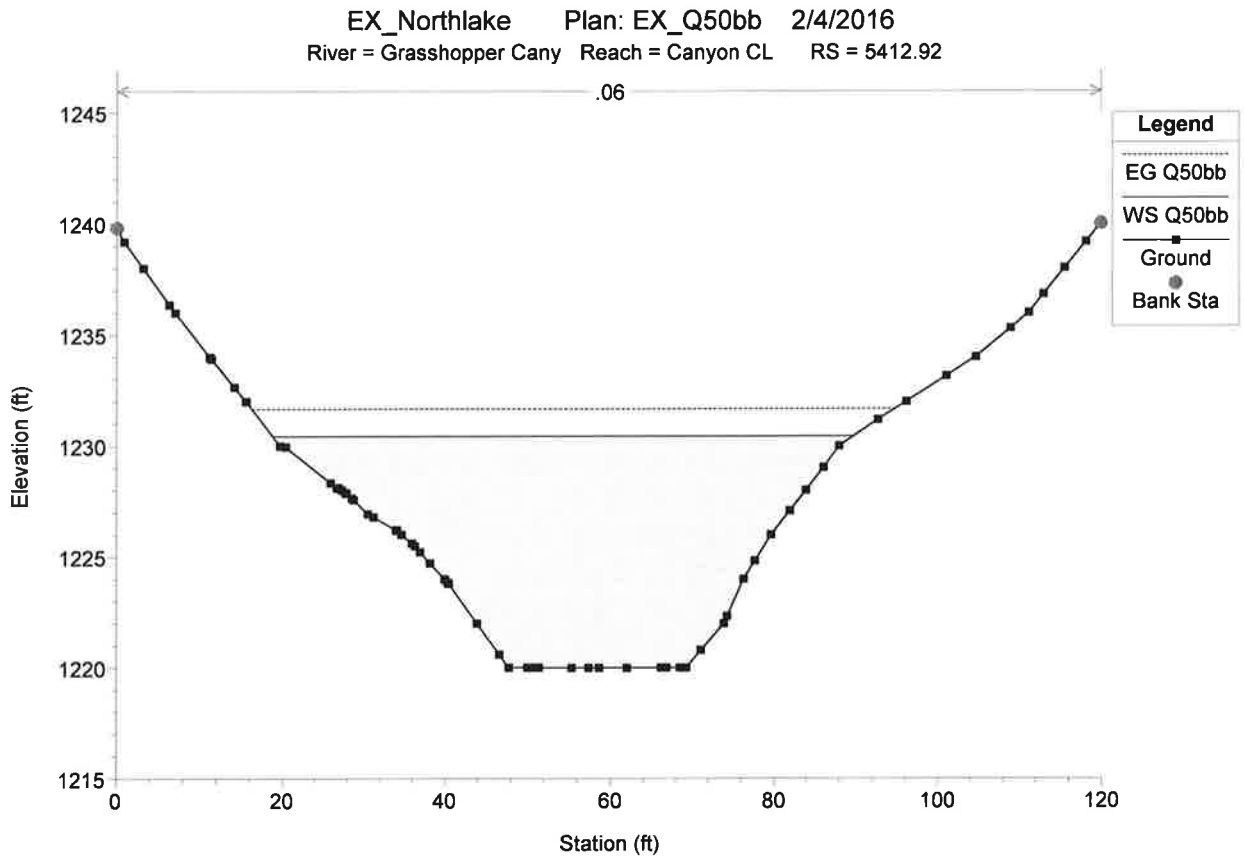

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6444.88
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1260
1255
1250
1245
1240
0
20
40
60
80
100
120
140
160

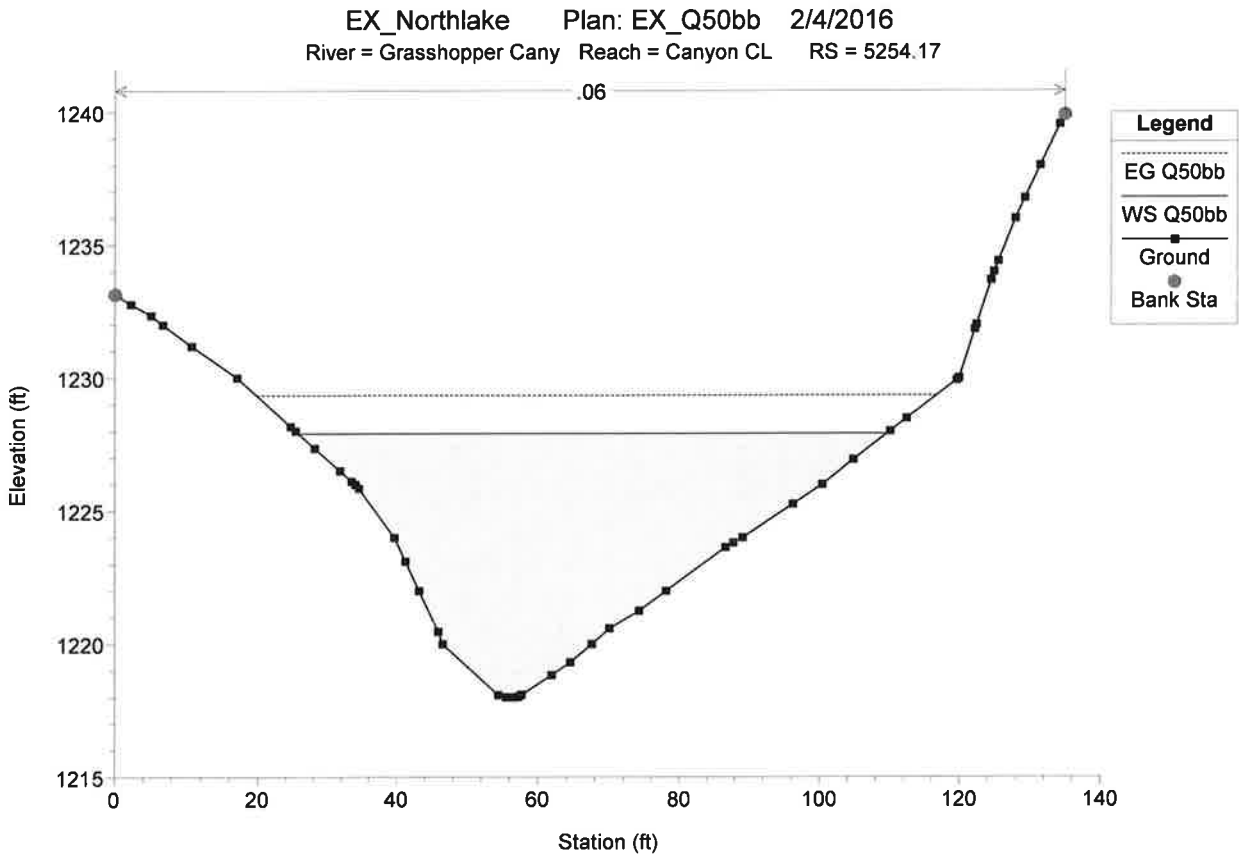

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6236.36
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1265
1260
1255
1250
1245
1240
1235
0
20
40
60
80
100
120
140

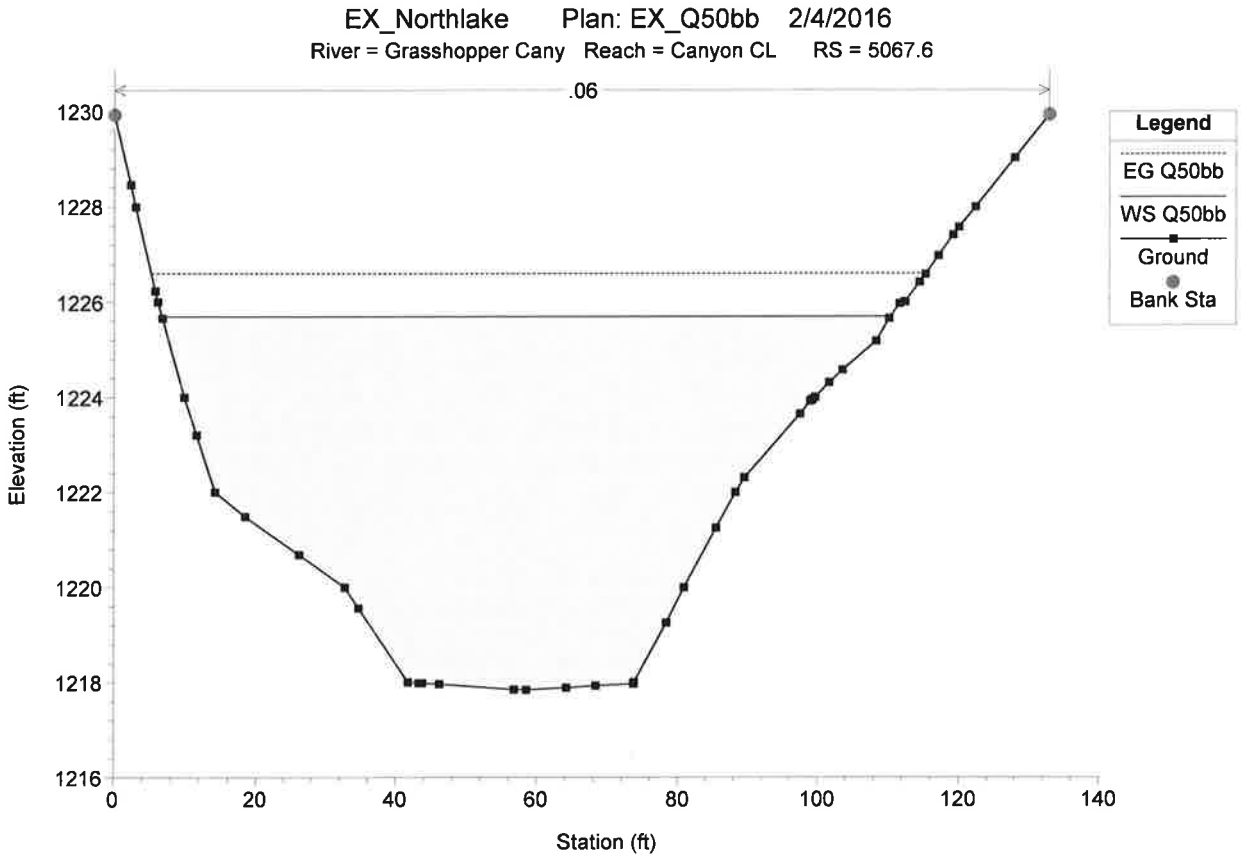

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6054.14
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1250
1245
1240
1235
1230
0
20
40
60
80

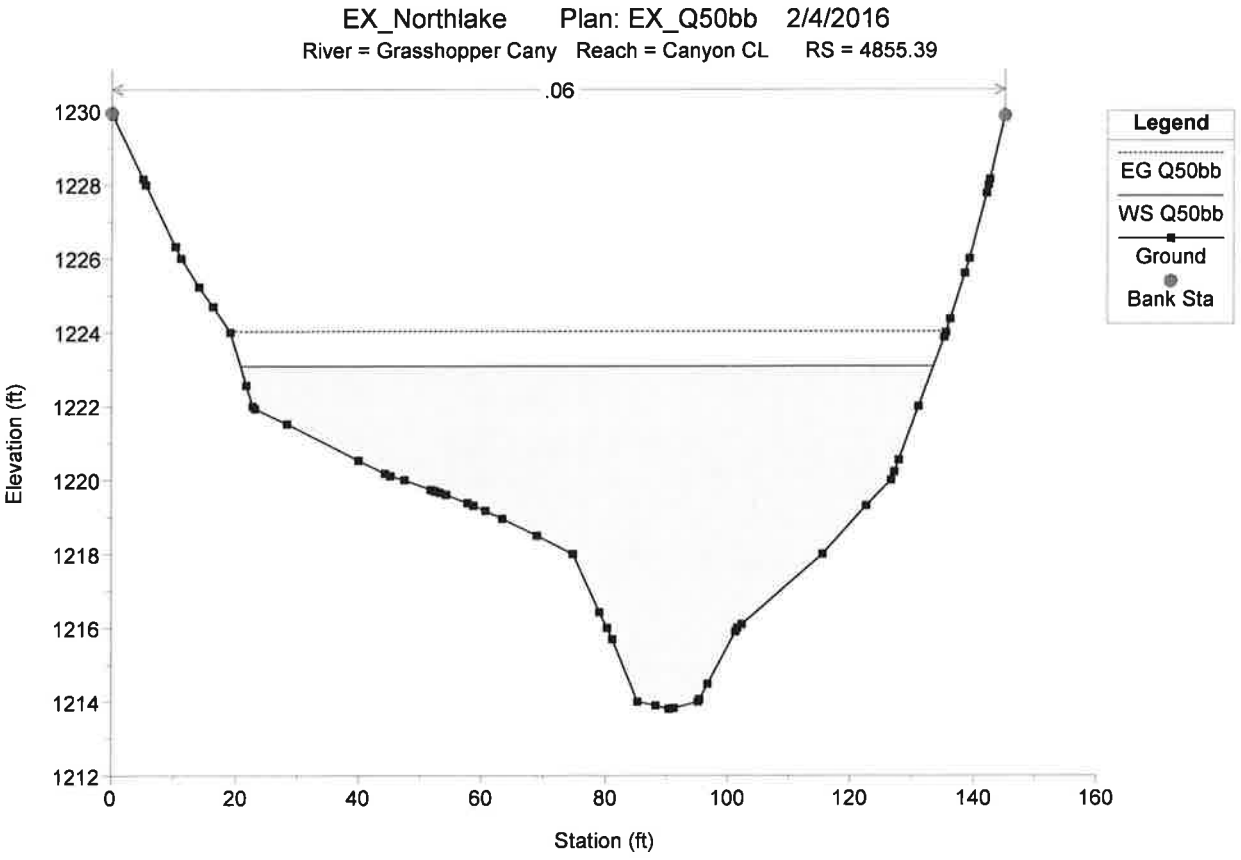

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5840.58
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1250
1245
1240
1235
1230
1225
0
20
40
60
80
100
120

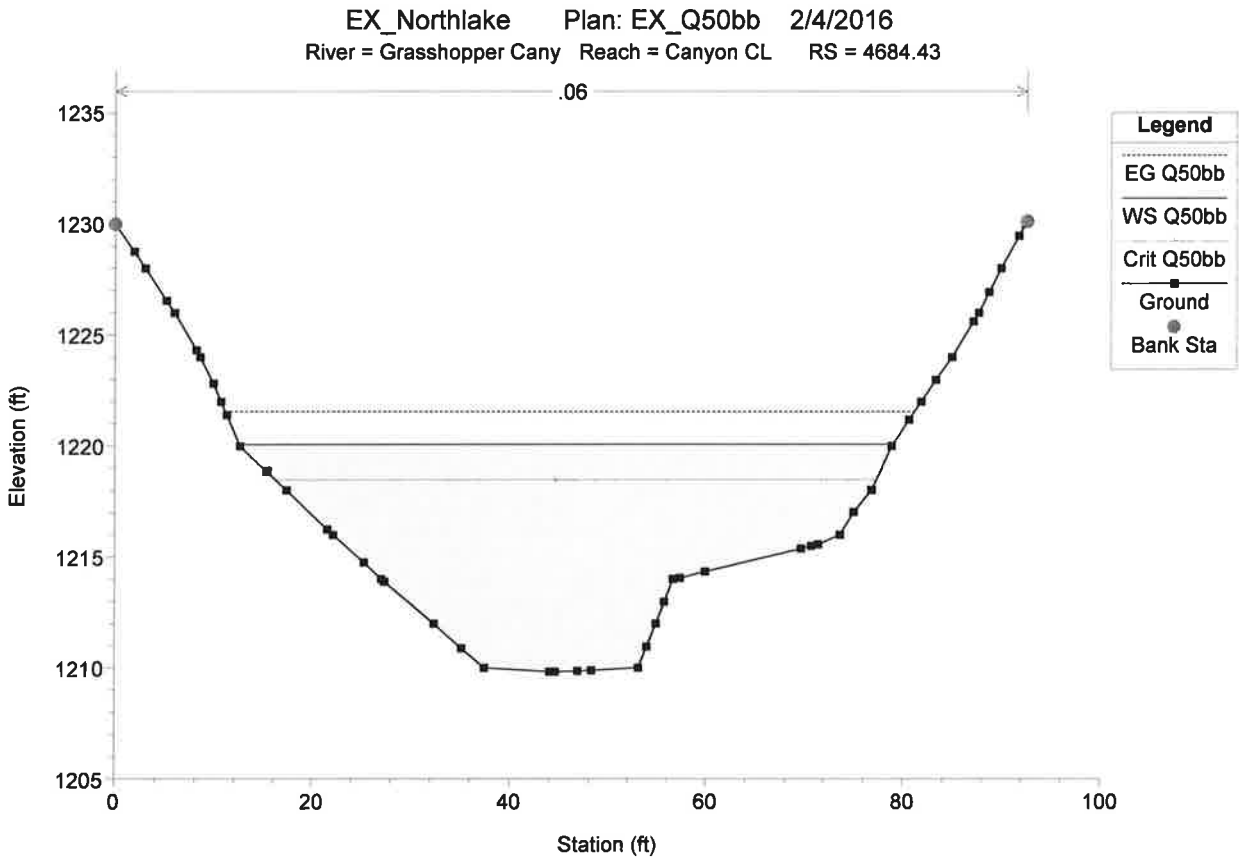

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5620.63
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1245
1240
1235
1230
1225
1220
0
20
40
60
80
100

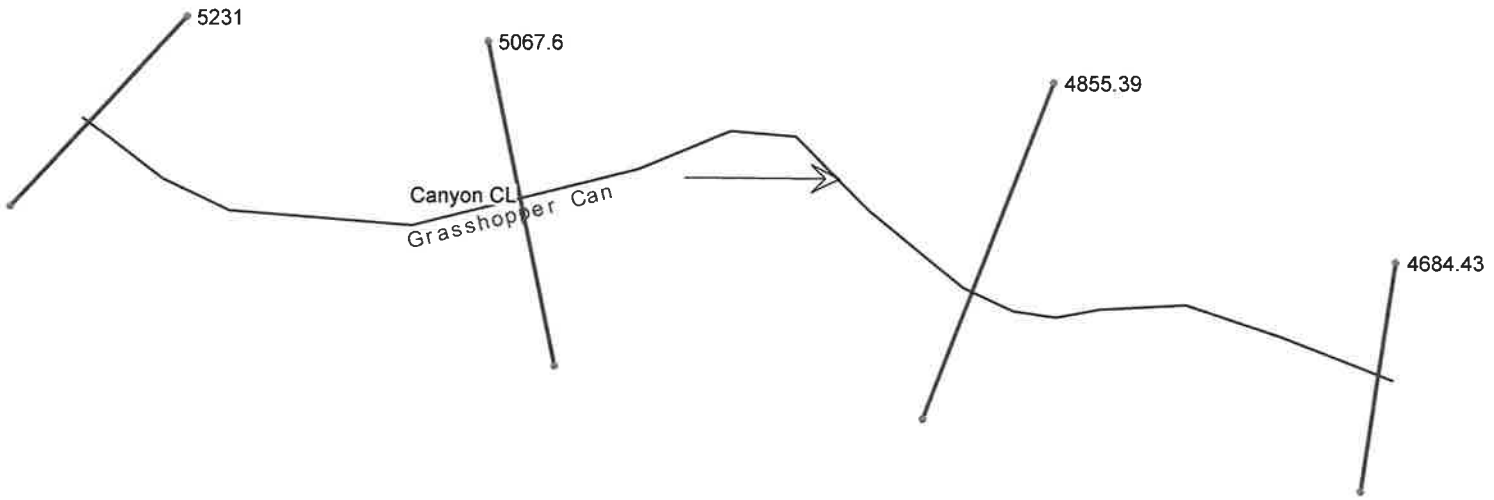

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5412.92
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1245
1240
1235
1230
1225
1220
1215
0
20
40
60
80
100
120


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5254.17
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1240
1235
1230
1225
1220
1215
0
20
40
60
80
100
120
140

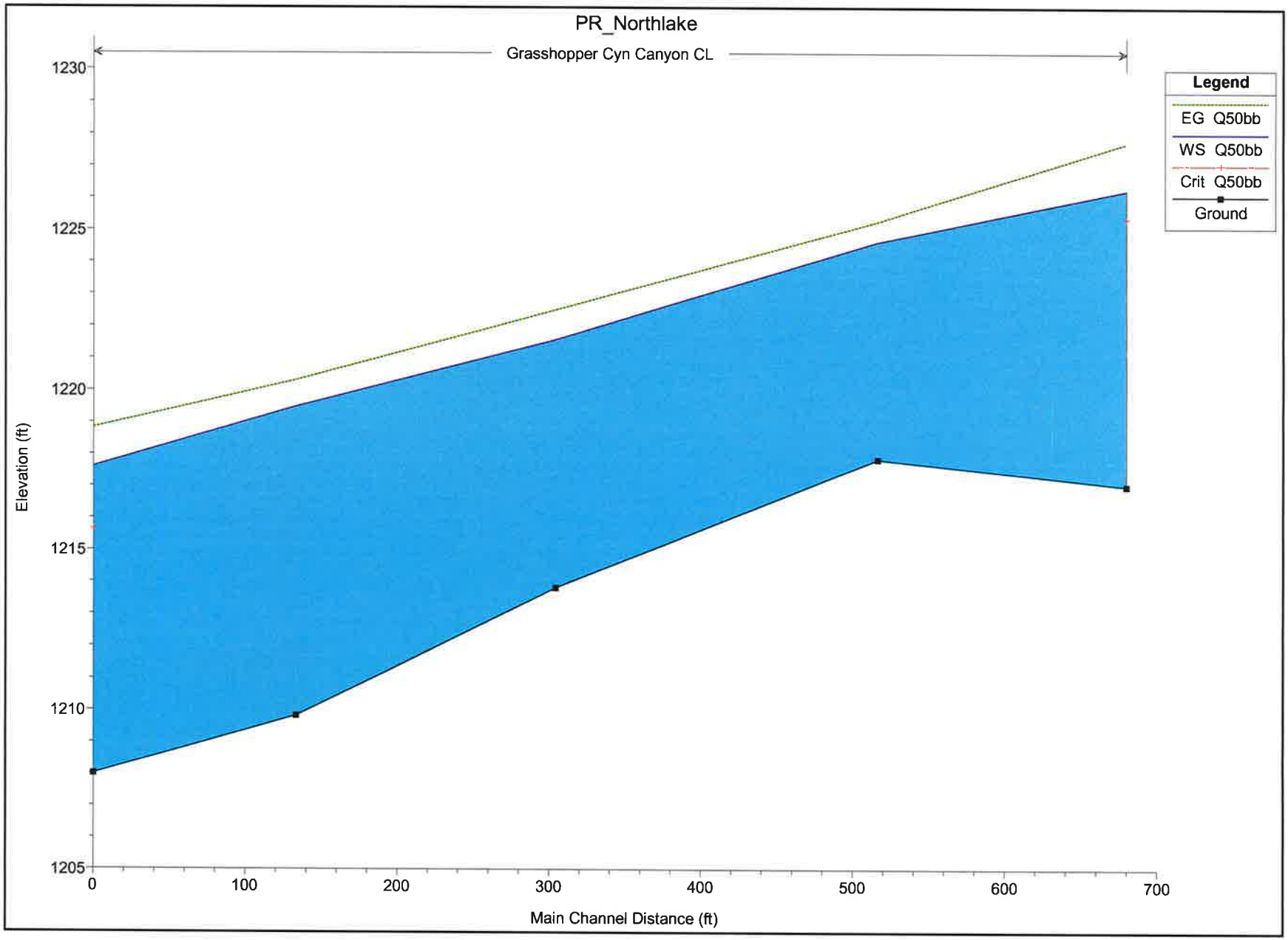

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5067.6
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1230
1228
1226
1224
1222
1220
1218
1216
0
20
40
60
80
100
120
140


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 4855.39
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1230
1228
1226
1224
1222
1220
1218
1216
1214
1212
0
20
40
60
80
100
120
140
160


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 4684.43
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1235
1230
1225
1220
1215
1210
1205
0
20
40
60
80
100

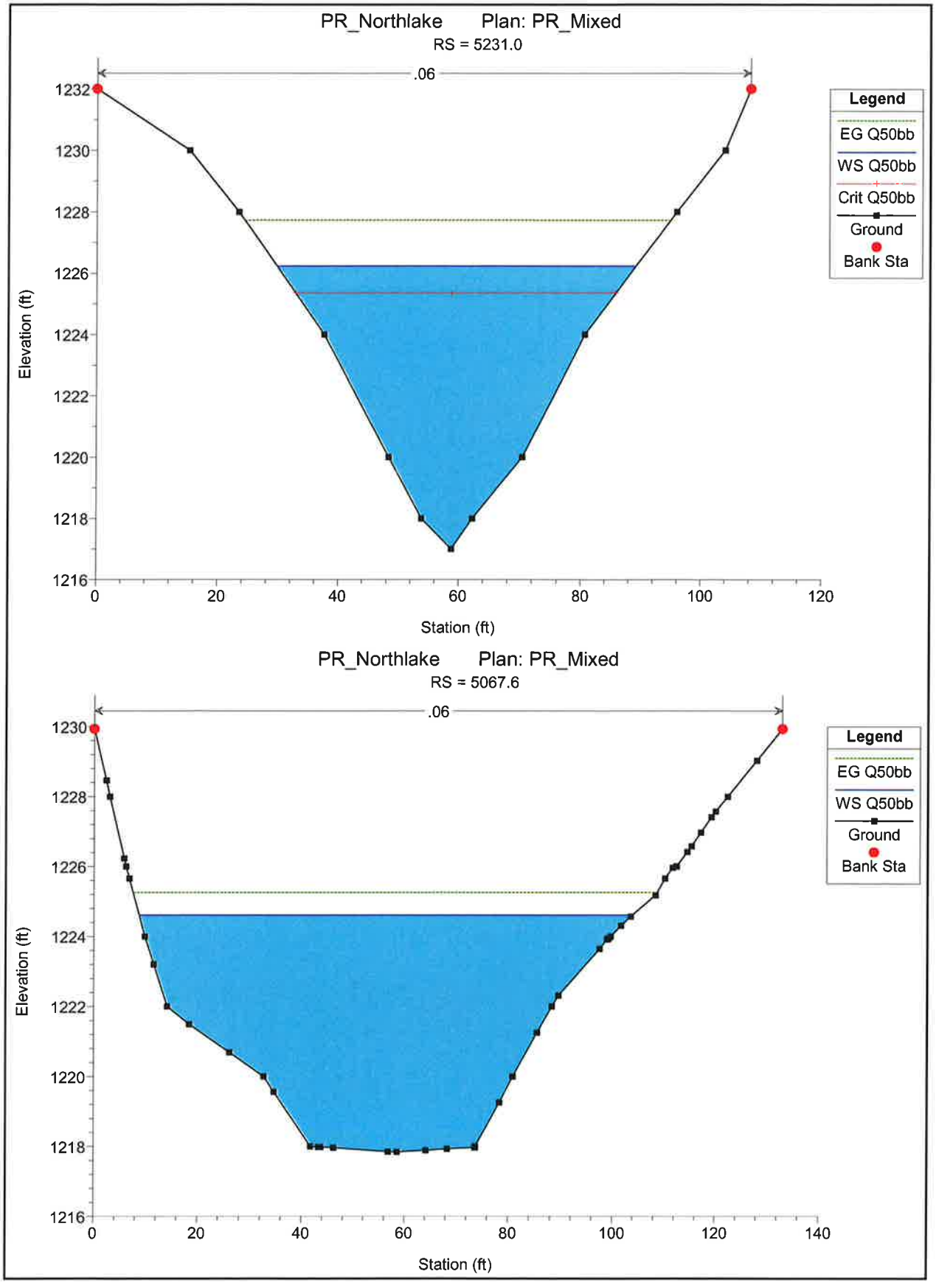


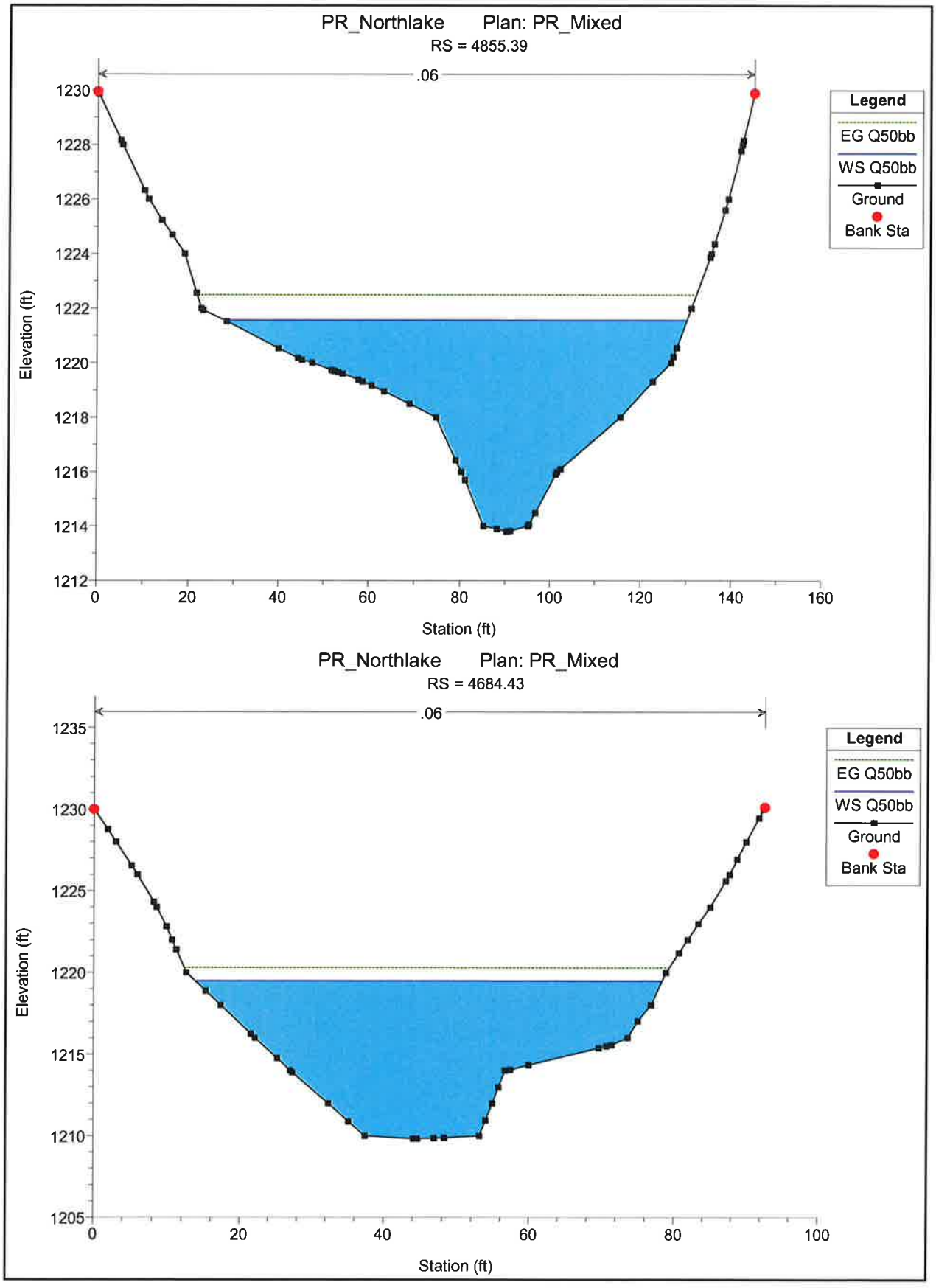
PROPOSED CONDITION

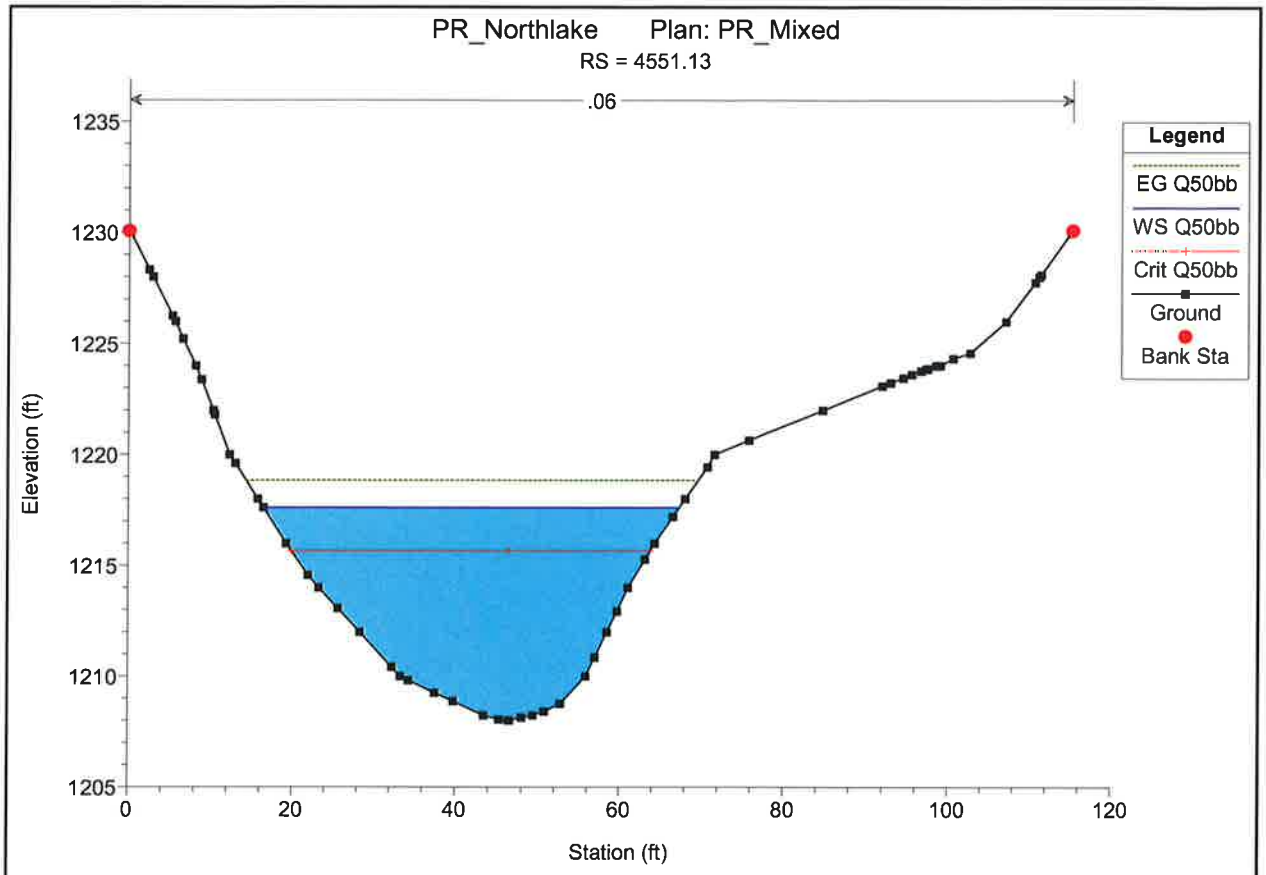

PR_Northlake
Grasshopper Cyn Canyon CL
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Elevation (ft)
1230
1225
1220
1215
1210
1205
0
100
200
300
400
500
600
700
Main Channel Distance (ft)

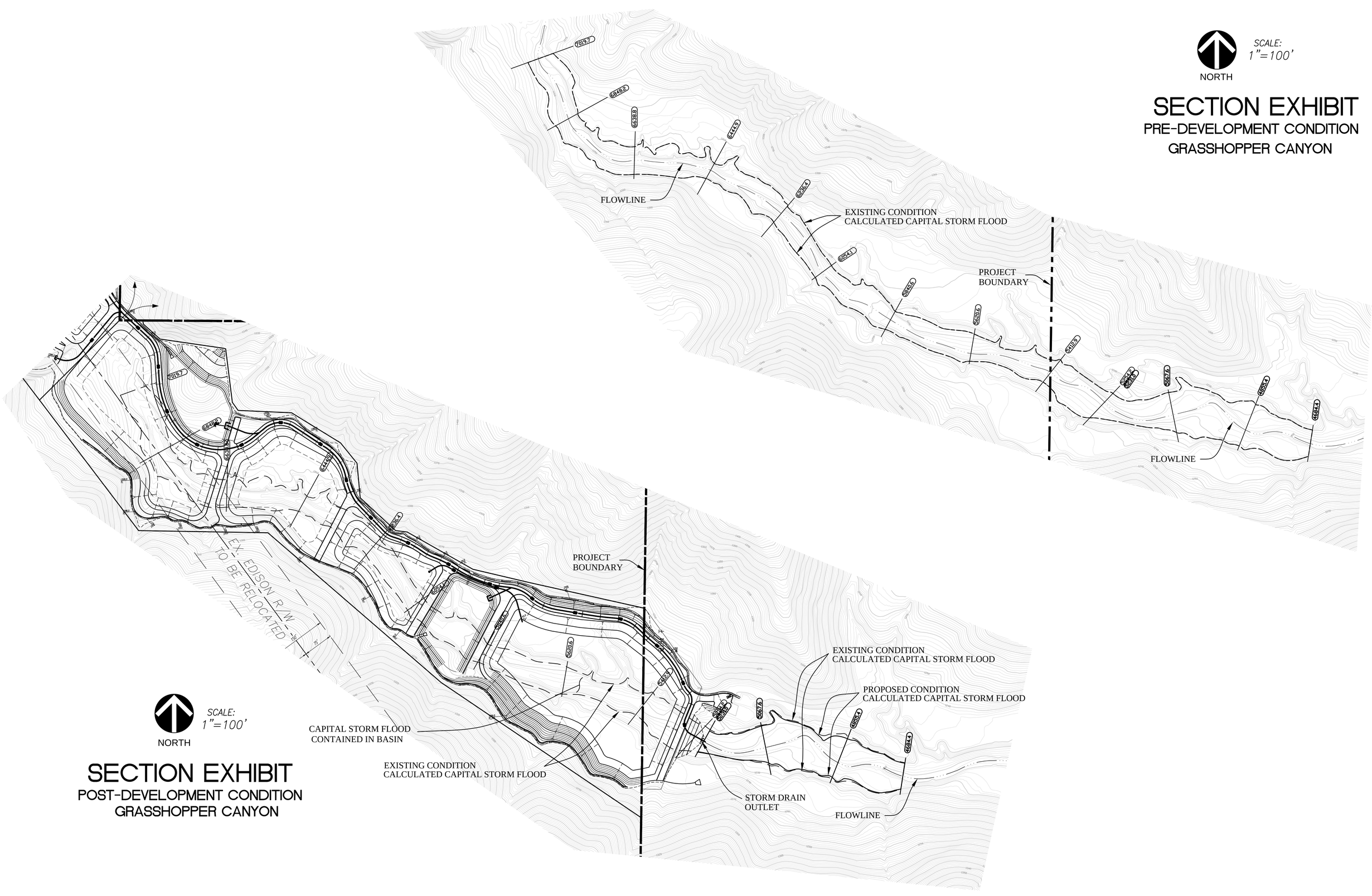
HEC-RAS Plan: PR_Mixed River: Grasshopper Cyn Reach: Canyon CL Profile: Q50bb

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Canyon CL	5231.0	Q50bb	2739.90	1217.00	1226.23	1225.36	1227.73	0.021327	9.82	279.06	59.49	0.80
Canyon CL	5067.6	Q50bb	2739.90	1217.84	1224.61		1225.26	0.009384	6.44	425.70	95.19	0.54
Canyon CL	4855.39	Q50bb	2739.90	1213.80	1221.57		1222.49	0.018924	7.71	355.21	102.43	0.73
Canyon CL	4684.43	Q50bb	2739.90	1209.82	1219.50		1220.31	0.008959	7.25	378.03	64.57	0.53
Canyon CL	4551.13	Q50bb	2739.90	1208.00	1217.62	1215.67	1218.84	0.013011	8.88	308.45	50.86	0.64


PR_Northlake Plan: PR_Mixed
RS = 5231.0
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
PR_Northlake Plan: PR_Mixed
RS = 5067.6
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)


PR_Northlake Plan: PR_Mixed
RS = 4855.39
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
PR_Northlake Plan: PR_Mixed
RS = 4684.43
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)


PR_Northlake Plan: PR_Mixed
RS = 4551.13
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
1235
1230
1225
1220
1215
1210
1205
0
20
40
60
80
100
120
Station (ft)



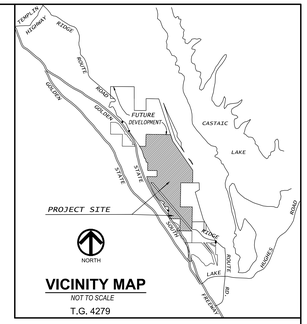
SECTION EXHIBIT
PRE-DEVELOPMENT CONDITION
GRASSHOPPER CANYON

SECTION EXHIBIT
POST-DEVELOPMENT CONDITION
GRASSHOPPER CANYON

K:\Lakeral\0582-151\VA Planning\Drainage\Cad\HECRAS WORKING_51852_AL 1-04 211 LOWER.dwg
Plotted: 08/10/18 12:42:27 by Leslie

HYDROLOGIC SUMMARY

Node Number	Area (ac)	Qb (cfs)	Tc (min)	Freq (yrs)	Qbb (cfs)	DPV (cy)
1A	40.9	81.8	12	50	132.5	8,947
2A	50.6	111.8	10	50	181.1	11,069
3A	48.8	107.8	10	50	174.6	10,675
4A	37.8	87.6	9	50	141.9	8,269
5A	46.9	98.3	11	50	159.2	10,259
8B	55.4	122.4	10	50	198.3	12,119
9B	51.0	106.8	11	50	173.0	11,156
11A	46.3	92.6	12	50	150.0	10,128
12A	46.7	93.4	12	50	151.3	10,216
13A	55.0	115.2	11	50	186.6	12,031
14A	52.8	110.6	11	50	179.2	11,550
15A	52.6	105.2	12	50	170.4	11,506
16A	23.5	51.9	10	50	84.1	5,141
19C	26.0	68.0	7	50	110.2	5,688
20C	48.7	90.1	14	50	146.0	10,653
22A	49.7	89.0	15	50	144.2	10,872
25D	45.0	94.3	11	50	152.8	9,844
26D	31.1	62.2	12	50	100.8	6,803
27D	49.3	98.6	12	50	159.7	10,784
28D	47.5	87.9	14	50	142.4	10,391
29D	29.2	61.2	11	50	99.1	6,388
30D	48.6	107.4	10	50	174.0	10,631
31D	41.1	78.9	13	50	127.8	8,991
35A	41.3	79.3	13	50	128.5	9,034
36A	46.4	97.2	11	50	157.5	10,150
37A	26.8	59.2	10	50	95.9	5,863
38A	64.1	114.8	15	50	186.0	14,022
39A	41.6	87.2	11	50	141.3	9,100
42E	61.9	103.5	17	50	151.6	7,931
43E	50.1	100.2	12	50	146.8	6,419
44E	64.4	115.3	15	50	168.9	8,251
46A	47.5	91.2	13	50	133.6	6,086
47A	38.8	63.0	16	50	92.3	4,971
48A	38.8	64.9	17	50	95.1	4,971
49A	25.9	63.5	8	50	93.0	3,318
50A	68.3	114.2	17	50	167.3	8,751
53E	45.6	91.2	12	50	133.6	5,843
54F	53.1	95.1	15	50	139.3	6,803
56A	46.0	85.1	14	50	124.7	5,894
57A	50.8	91.0	15	50	133.3	6,509
60B	53.0	86.0	18	50	126.0	6,791
61B	38.3	64.6	10	50	123.9	4,907
63A	47.7	91.6	13	50	134.2	6,112
64A	50.0	104.8	11	50	153.5	6,406
65A	45.7	105.9	9	50	155.1	5,855
66A	38.3	88.7	9	50	129.9	4,907
OP1	2.5	7.9	5	50	11.6	513
OP5	4.0	12.6	5	50	18.5	320



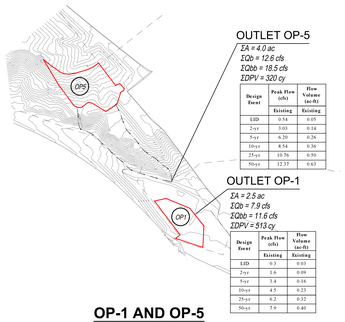
VICINITY MAP
NOT TO SCALE
T.G. 4279

LEGEND

- MAIN DRAINAGE BOUNDARY
- SUB-AREA BOUNDARY
- FLOW LINE
- ON PARCEL (OP) LOCATIONS
- TRACT BOUNDARY
- (34) & (19C) .... LOCATION NAMES
- A .... AREA IN ACRES, Ac
- Qb .... 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qbb .... 50-YR, BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- DPV .... DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, cy
- Σ .... TOTAL

HYDROLOGY CRITERIA

- *DESIGN STORM FREQUENCY: 50-YR FOR UNDEVELOPED NATURAL AREAS*
- *DPA ZONE = 3 AND 5*
- *BASIN NAME = SANTA CLARA*
- *SOIL TYPE NUMBER = 094*
- *PEAK BULKING FACTOR:*
  DPA ZONE 3 = 1.620 (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 1.465 (FOR AREAS 64 Ac. OR UNDER)
- *DEBRIS PRODUCTION RATE:*
  DPA ZONE 3 = 218.75 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 128.125 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
- *ISOHYET = 5.8" (50-YR, 24-HOUR)*
- *% IMPERVIOUSNESS: 1% FOR UNDEVELOPED / NATURAL AREAS*



OUTLET OP-5
ΣA = 4.0 ac
ΣQb = 12.6 cfs
ΣQbb = 18.5 cfs
ΣDPV = 320 cy

Design Event	Peak Flow (cfs)	Flow Volume (ac-ft)
	Existing	Existing
LID	0.54	0.05
2-yr	3.63	0.14
5-yr	6.35	0.26
10-yr	8.54	0.36
25-yr	10.76	0.50
50-yr	12.37	0.63

OUTLET OP-1
ΣA = 2.5 ac
ΣQb = 7.9 cfs
ΣQbb = 11.6 cfs
ΣDPV = 513 cy

Design Event	Peak Flow (cfs)	Flow Volume (ac-ft)
	Existing	Existing
LID	0.3	0.03
2-yr	1.6	0.09
5-yr	2.4	0.16
10-yr	4.5	0.23
25-yr	6.2	0.32
50-yr	7.9	0.40

OP-1 AND OP-5

OUTLET
ΣA = 2108.9 ac
ΣQb = 2899.2 cfs
ΣQbb = 4084.8 cfs
ΣDPV = 143,392 cy

OP-1 AND OP-5 SEE LEFT

HYDROLOGY STUDY APPROVED
CHECKED BY _____ RCE NO. 52680 DATE 6/7/2017
APPROVED BY _____ DATE 6/7/2017
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

EXISTING CONDITION
DRAINAGE CONCEPT
FOR VESTING TENTATIVE TRACT NO. 73336
(NORTHLAKE)
IN THE UNINCORPORATED TERRITORY OF LOS ANGELES COUNTY

NORTH
SCALE: 1"=400'
DATE: 02/21/2017
W.O. NO.: 5090-033-35

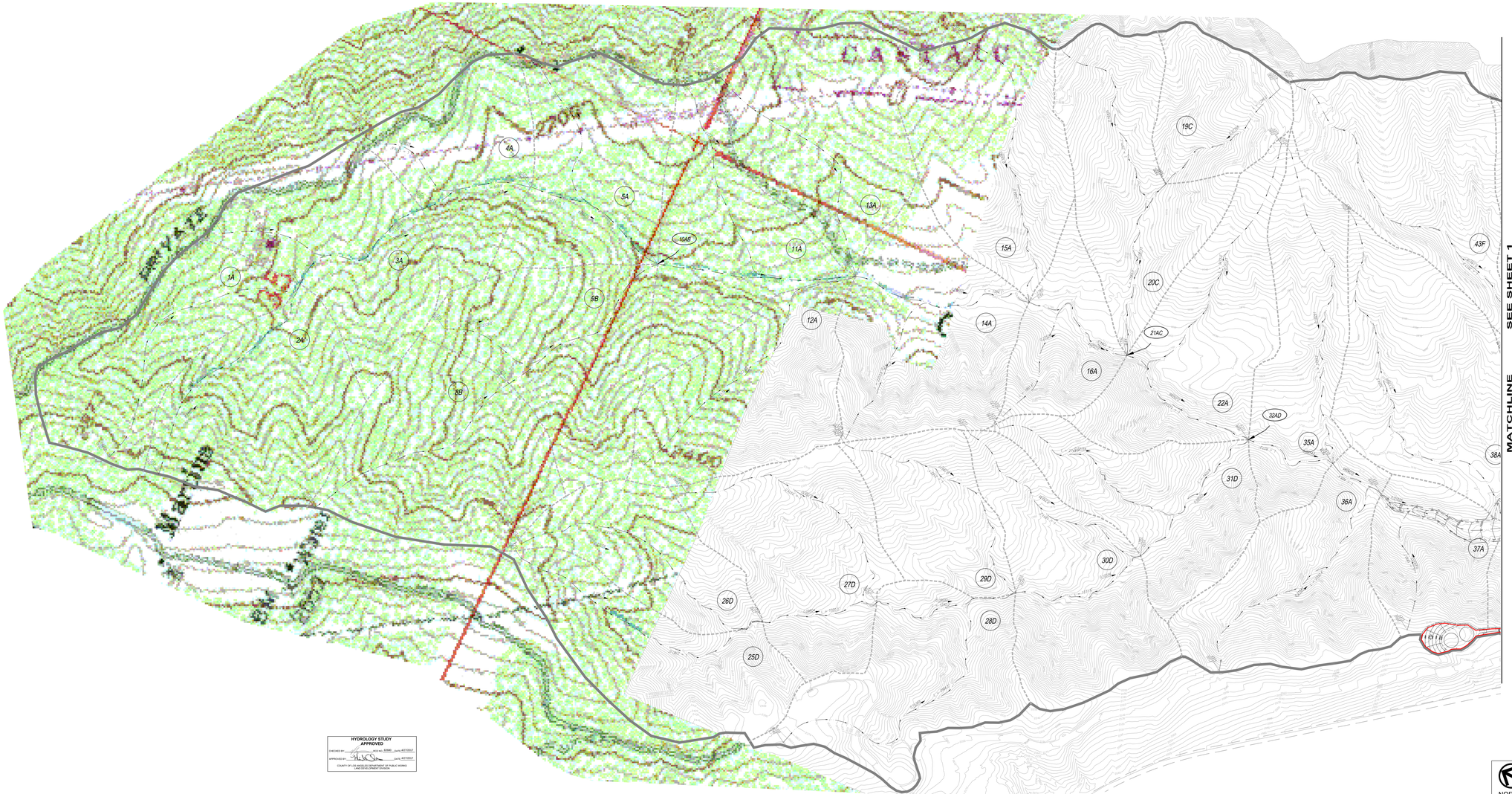
PREPARED FOR :
Northlake Associates, LLC
1999 AVENUE OF THE STARS, SUITE 2850, LOS ANGELES, CA 90067
ATTN: JOHN ARVIN
(310) 824-2200

PREPARED BY :
SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd. #100, Van Nuys, CA 91411
Phone - (818) 787- 6550, Fax - (818) 901-7451
www.sikand.com, E-mail: info@sikand.com

REGISTERED PROFESSIONAL ENGINEER No.49041 Exp. 09-30-2019 CIVIL STATE OF CALIFORNIA

SHEET **1** OF **1** SHEETS

Plotted: 11/06/2017 - 11:14:41 by Sharan Sikand
P:\projects\5090-033-35\Hydrology\Exhibits\5090-033-35 EX-1 HYDROLOGY 10-11-17\hydro_ex1.dwg, 36x24



MATCHLINE SEE SHEET 1

LEGEND

- MAIN DRAINAGE BOUNDARY
- SUB-AREA BOUNDARY
- FLOW LINE
- PROPOSED STORM DRAIN
- TRACT BOUNDARY
- (M) & (VAC) — LOCATION NAMES
- A — AREA IN ACRES, Ac
- Qb — 50-YR. BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qbb — 50-YR. BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qd — 50-YR OR 25-YR. DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qb+d — MIXED 25- & 50-YR. BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qbb+d — MIXED 25- & 50-YR. BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qpm — WATER QUALITY FLOW IN CUBIC FEET PER SECOND, cfs
- Vm — WATER QUALITY VOLUME IN CUBIC YARDS, cu-ft
- DPV — DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, cy
- Σ — TOTAL
- 1 — DESILTING BASIN WITH PAVED VEHICULAR ACCESS & TITLE FEE LOT. (TO BE PUBLICLY MAINTAINED)
- 2 — DEBRIS CARRYING PAVED DITCH WITH 3% MIN SLOPE, OR OTHERWISE SHOWN. & SELF-CLEANING VELOCITY (TO BE PRIVATELY MAINTAINED)

HYDROLOGY STUDY APPROVED

CHECKED BY: _____ RCE NO. 32680 DATE 4/27/2017

APPROVED BY: _____ DATE 4/27/2017

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

PROPOSED CONDITION

DRAINAGE CONCEPT

FOR VESTING TENTATIVE TRACT NO. 73336

(NORTHLAKE PHASE 1)

IN THE UNINCORPORATED TERRITORY OF LOS ANGELES COUNTY

NORTH

SCALE: 1"=200'

PREPARED FOR:
Northlake Associates, LLC
1999 AVENUE OF THE STARS, SUITE 3350, LOS ANGELES, CA 90067
ATTN: JOHN ARVIN
(310) 824-2200

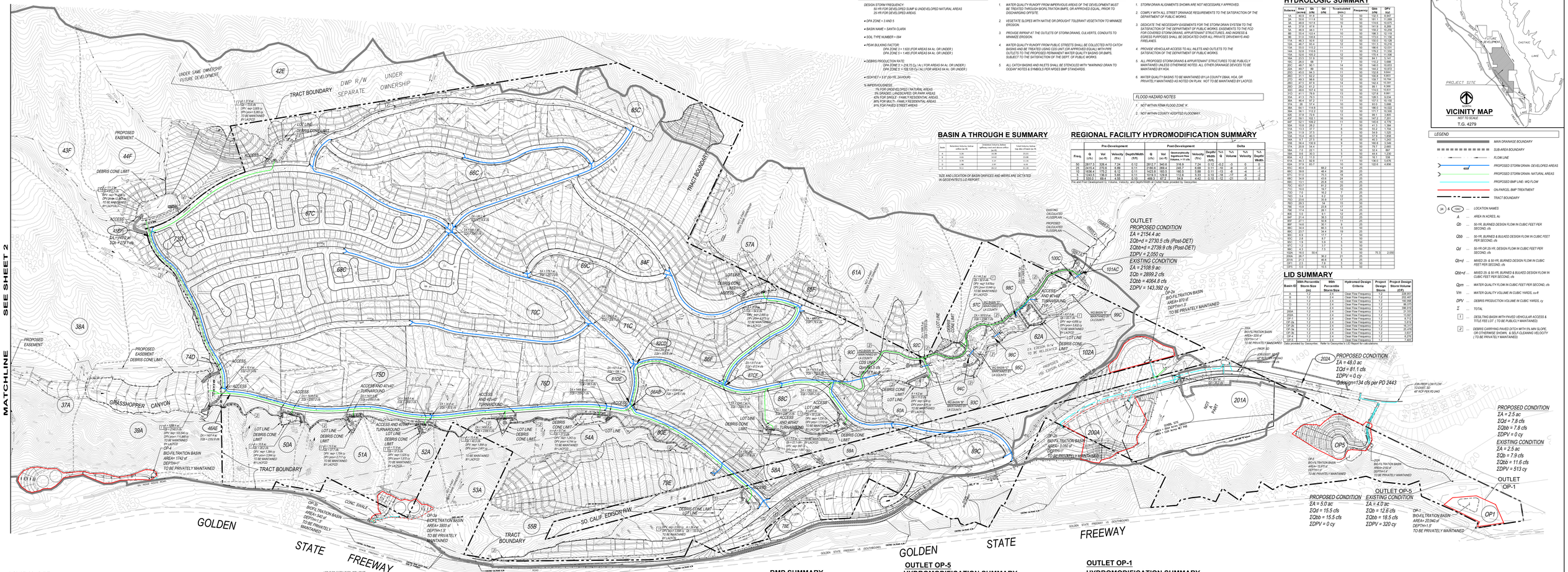
DATE: 03/15/2017

W.O. NO.: 5090-033-35

PREPARED BY:
SIKAND
Engineering · Planning · Surveying
15230 Burbank Blvd. #100, Van Nuys, CA 91411
Phone: (818) 787- 8550; Fax: (818) 901-7451
www.sikand.com; E-mail: info@sikand.com

REGISTERED PROFESSIONAL ENGINEER No.45041 Exp. 06-30-2018 CIVIL STATE OF CALIFORNIA

SHEET 2 OF 2 SHEETS



HYDROLOGY CRITERIA

DESIGN STORM FREQUENCY:
50-YR FOR DEVELOPED SUMP & UNDEVELOPED NATURAL AREAS
25-YR FOR DEVELOPED AREAS

- DPA ZONE = 3 AND 5
- BASIN NAME = SANTA CLARA
- SOIL TYPE NUMBER = 094
- PEAK BULKING FACTOR:
  DPA ZONE 3 = 1.620 (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 1.485 (FOR AREAS 64 Ac. OR UNDER)
- DEBRIS PRODUCTION RATE:
  DPA ZONE 3 = 216.75 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 108.125 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
- ISOHYET = 9.5" (50-YR, 24-HOUR)
- % IMPERVIOUSNESS:
  1% FOR UNDEVELOPED ("NATURAL) AREAS
  5% (BASIC, LANDSCAPED) OR PARK AREAS
  42% FOR SINGLE - FAMILY RESIDENTIAL AREAS
  84% FOR MULTI - FAMILY RESIDENTIAL AREAS
  91% FOR PAVED STREET AREAS

BEST MANAGEMENT PRACTICES (BMP'S) LIST

1. WATER QUALITY RUNOFF FROM IMPERVIOUS AREAS OF THE DEVELOPMENT MUST BE TREATED THROUGH BIOFILTRATION BMPS, OR APPROVED EQUAL, PRIOR TO DISCHARGING OFFSITE.
2. VEGETATE SLOPES WITH NATIVE OR DROUGHT TOLERANT VEGETATION TO MINIMIZE EROSION.
3. PROVIDE RIPRAP AT THE OUTLETS OF STORM DRAINS, CLV-VERTS, CONDUITS TO MINIMIZE EROSION.
4. WATER QUALITY RUNOFF FROM PUBLIC STREETS SHALL BE COLLECTED INTO CATCH BASINS AND BE TREATED USING CDS UNIT (OR APPROVED EQUAL) WITH PIPE OUTLETS TO THE PROPOSED PERMANENT WATER QUALITY BASINS OR BMPS, SUBJECT TO THE SATISFACTION OF THE DEPT. OF PUBLIC WORKS.
5. ALL CATCH BASINS AND INLETS SHALL BE STENCILED WITH "WARNING! DRAIN TO OCEAN" NOTES & SYMBOLS PER NPDES BMP STANDARDS.

GENERAL NOTES

1. STORM DRAIN ALIGNMENTS SHOWN ARE NOT NECESSARILY APPROVED.
2. COMPLY WITH ALL STREET DRAINAGE REQUIREMENTS TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
3. DEDICATE THE NECESSARY EASEMENTS FOR THE STORM DRAIN SYSTEM TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS. EASEMENTS TO THE FCD SHALL INCLUDE STORM DRAINS, APPURTENANT STRUCTURES, AND INGRESS & EGRESS PURPOSES SHALL BE DEDICATED OVER ALL PRIVATE DRIVEWAYS AND FIRELANES.
4. PROVIDE VEHICULAR ACCESS TO ALL INLETS AND OUTLETS TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
5. ALL PROPOSED STORM DRAINS & APPURTENANT STRUCTURES TO BE PUBLICLY MAINTAINED UNLESS OTHERWISE NOTED. ALL OTHER DRAINAGE DEVICES TO BE MAINTAINED BY HOA.
6. WATER QUALITY BASINS TO BE MAINTAINED BY LA COUNTY DBAA, HOA, OR PRIVATELY MAINTAINED AS NOTED ON PLAN. NOT TO BE MAINTAINED BY LACFCD.

FLOOD HAZARD NOTES

1. NOT WITHIN FEMA FLOOD ZONE 'A'.
2. NOT WITHIN COUNTY ADOPTED FLOODWAY.

HYDROLOGIC SUMMARY

Subarea	Area (acres)	Qb (cfs)	Qd (cfs)	Tc-calculated (min.)	Frequency	Qbb (cfs)	DPV (cy)
1A	40.8	61.8		12	50	130.1	9,067
2A	40.8	61.8		12	50	130.1	9,067
3A	40.8	101.8		10	50	114.6	10,875
4A	31.8	67.6		9	50	141.9	8,269
5A	40.9	99.5		11	50	158.2	10,259
6B	55.4	122.4		10	50	196.5	12,119
10A	49.3	104.4		10	50	166.7	10,780
11A	45.3	93.8		12	50	150.0	10,108
12A	46.7	93.4		12	50	151.3	10,216
13A	50.5	113.2		11	50	166.6	11,031
14A	52.8	110.6		11	50	179.2	11,100
15A	51.8	110.8		11	50	175.7	11,000
16A	51.3	111.9		10	50	164.1	11,141
19C	26.2	68		7	50	110.2	5,688
20C	40.7	101.1		14	50	146.0	10,003
22A	49.7	88		15	50	144.2	10,472
23A	49.7	88		15	50	144.2	10,472
25C	51.2	112.2		13	50	168.6	10,861
27C	49.3	98.6		12	50	159.7	10,744
28C	40.7	97.9		14	50	142.4	10,591
29C	29.2	61.2		11	50	99.1	6,368
30C	41.2	89.6		11	50	140.6	9,387
31C	41.2	89.6		11	50	137.8	9,861
35A	41.3	79.3		13	50	126.3	9,034
36A	45.2	97.2		11	50	137.5	10,126
37A	28	57.4		10	50	93.0	5,688
38A	64.1	114.8		15	50	186.2	14,230
39A	56.1	112.2		12	50	171.1	10,500
40A	56.1	112.2		12	50	171.1	10,500
43F	50.1	102.1		10	50	157.2	7,201
44F	52.1	108.2		11	50	160.8	4,779
50B	10.8	28.2		7	50	45.2	1,994
51A	11.3	27.7		6	50	55.2	1,724
52A	11.3	27.7		6	50	55.2	1,724
53A	15.6	40.3		7	50	67.8	1,958
54A	8.7	22.5		8	50	40.3	1,243
55B	16.4	130.9		7	50	166.8	1,749
57A	20.8	54.4		7	50	79.7	2,065
58A	8.1	20.5		7	50	29.8	1,000
59A	6.9	20.1		7	50	44.4	930
60A	4.2	11.0		7	50	16.1	539
61A	48.3	102.8		11	50	136.0	5,675
62A	31.9	83.7		15	50	120.6	4,898
64C	51.0		69.2	15	25		
65C	50.9		69.4	16	25		
67C	51.0		70.3	16	25		
68C	34.0		43.6	24	25		
69C	13.1		20.8	15	25		
70C	19.0		30.2	17	25		
71C	7.0		10.7	10	25		
72C	7.0		16.2	7	25		
74C	3.4		6.2	12	25		
75D	23.6		35.9	17	25		
76D	23.6		35.9	17	25		
78E	13.8		23.8	11	25		
79E	13.8		23.8	11	25		
84F	8.5		8.1	12	25		
86F	21.4		38.3	12	25		
87F	21.4		32.5	9	25		
88F	14.8		49.3	9	25		
89C	14.8		49.3	9	25		
90C	8.9		16.4	10	25		
92C	8.9		17.7	7	25		
93C	1.9		8.7	7	25		
95C	1.9		3.9	5	25		
96C	1.9		3.9	5	25		
98C	8.3		7.3	5	25		
100A	16.2	50.6		5	50	75.3	2,050
200A	36.2		54.1	15	25		
201A	21.1		40.8	8	25		
202A	48.0		81.1	8	25		
OP1	11.5		19.5	7	50		

BASIN A THROUGH E SUMMARY

Basin	Retention Volume Req. Below Outflow (cf)	Detention Volume Req. Above Outflow (cf)	Total Volume Req. (cf)
A	1.34	10.36	11.70
B	4.55	14.42	23.08
C	3.70	5.14	11.26
D	1.98	2.67	6.41
E	1.11	1.11	3.33

SIZE AND LOCATION OF BASIN ORIFICES AND WEIRS ARE DICTATED IN GEOSYNTEC'S LID REPORT.

REGIONAL FACILITY HYDROMODIFICATION SUMMARY

Freq.	Pre-Development Q (cfs)	Vol (ac-ft)	Velocity (ft/s)	Depth/Width (ft/ft)	Post-Development Q (cfs)	Vol (ac-ft)	Semi-circular Significant Flow Volume, = 11 cfs	Velocity (ft/s)	Depth/ Width (ft/ft)	Delta % Q	Delta % Volume	Delta % Velocity	Delta % Depth/ Width
50	2817.3	358.4	7.24	0.13	2812.7	340.8	318.9	7.24	0.12	-0.2	-5	0	-5
25	2458.2	312.8	6.85	0.12	2455.0	297.5	282.1	6.88	0.11	-0.1	-5	0	-5
10	1918.4	244.2	6.25	0.11	1916.2	232.3	246.0	6.28	0.11	-0.1	-5	0	-5
5	1243.5	158.0	5.65	0.11	1019.5	129.8	112.6	5.53	0.10	-18	-17	-6	-12
2	533.0	67.8	4.55	0.10	488.2	67.2	54.9	4.42	0.10	-8	-1	-3	0

Pre and Post Development Q, Volume, Velocity, and Depth/Width at Outlet Node provided by Geosyntec.

LID SUMMARY

Basin ID	85th Percentile Storm Size (in)	95th Percentile Storm Size	Hydromod Design Criteria	Project Design Storm (in)	Project Design Storm Volume (CF)
A	1.2	2.4	Clear Flow Frequency	1.2	228,907
B	1.2	2.4	Clear Flow Frequency	1.2	102,168
C	1.2	2.4	Clear Flow Frequency	1.2	161,368
D	1.2	2.4	Clear Flow Frequency	1.2	96,375
E	1.2	2.4	Clear Flow Frequency	1.2	306,319
200A	1.2	2.4	Clear Flow Frequency	1.2	73,920
201A	1.2	2.4	Clear Flow Frequency	1.2	43,063
OP-1	1.2	2.4	Clear Flow Frequency	1.2	5,172
OP-2a	1.2	2.4	Clear Flow Frequency	1.2	3,618
OP-2b	1.2	2.4	Clear Flow Frequency	1.2	16,172
OP-3a	1.2	2.4	Clear Flow Frequency	1.2	25,478
OP-3b	1.2	2.4	Clear Flow Frequency	1.2	3,172
OP-4	1.2	2.4	Clear Flow Frequency	1.2	8,228
OP-5	1.2	2.4	Clear Flow Frequency	1.2	1,405

Data provided by Geosyntec. Refer to Geosyntec's LID report for calculations.

BMP SUMMARY

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	1.5*SWQDv (Ac-ft)	Biofiltration Provided (Ac-ft)	Storage Provided (Ac-ft)	Total Vol Provided (Ac-ft)
OP-2a	2.7	0.13	0.20	0.20	0.00	0.20
OP-4	1.3	0.19	0.29	0.20	0.04	0.24

Q and SWQDv Data provided by Geosyntec. Refer to Geosyntec's LID Report for calculations.

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	1.5*SWQDv (Ac-ft)	Biofiltration Provided (Ac-ft)	Storage Provided (Ac-ft)	Total Vol Provided (Ac-ft)
OP-2b	1.6	0.07	0.09	0.09	0.07	0.16
OP-3a	4.7	0.58	0.87	0.75	0.13	0.88
OP-3b	0.9	0.08	0.12	0.12	0.00	0.12
200A	7.5	0.69	0.74	0.64	0.10	0.74
200A	1.0	0.10	0.48	0.41	0.07	0.48

OUTLET OP-5 HYDROMODIFICATION SUMMARY

Design Event	Peak Flow (cfs) Existing	Proposed	% difference	Flow Volume (ac-ft) Existing	Proposed	% difference (Total Volume)	Existing (Geosyntec tally Significant Flow Volume, = 6.5 cfs)	Proposed (Geosyntec tally Significant Flow Volume, = 6.5 cfs)	% difference (Geosyntec tally Significant Flow Volume)
1.2D	0.54	0.06	-89%	0.05	0.16	221%	0.01	0.00	-100%
2-yr	3.03	0.09	-97%	0.14	0.36	162%	0.07	0.00	-100%
5-yr	6.20	0.12	-98%	0.26	0.59	130%	0.17	0.00	-100%
10-yr	8.54	0.63	-92%	0.36	0.76	113%	0.26	0.12	-55%
25-yr	10.76	6.15	-43%	0.50	0.99	96%	0.41	0.33	-21%
50-yr	12.37	9.45	-24%	0.63	1.18	87%	0.54	0.54	-0.1%

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	Total Vol Provided (Ac-ft)
OP-5	10.5	0.48	0.55

Q and SWQDv Data provided by Geosyntec. Refer to Geosyntec's LID report for calculations.

OUTLET OP-1 HYDROMODIFICATION SUMMARY

Design Event	Peak Flow (cfs) Existing	Proposed	% difference	Flow Volume (ac-ft) Existing	Proposed	% difference (Total Volume)	Proposed (>0.145 cfs)	Existing (Geosyntec tally Significant Flow Volume, =0.145 cfs)	Proposed (Geosyntec tally Significant Flow Volume, =0.145 cfs)	% difference (Geosyntec tally Significant Flow Volume)
1.2D	0.3	0.67	-73%	0.03	0.29	733%	0.29	0.01	0.00	-100%
2-yr	1.6	0.10	-94%	0.09	0.39	333%	0.39	0.01	0.00	-100%
5-yr	3.4	0.13	-96%	0.16	0.48	200%	0.48	0.09	0.00	-100%
10-yr	4.5	0.14	-97%	0.23	0.73	224%	0.73	0.16	0.00	-100%
25-yr	5.2	0.33	-93%	0.32	0.90	182%	0.78	0.23	0.20	-13%
50-yr	5.9	1.27	-79%	0.48	1.63	177%	0.73	0.33	0.32	-2%

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	Total Vol Provided (Ac-ft)
OP-1	7.5	0.67	0.69

Q and SWQDv Data provided by Geosyntec. Refer to Geosyntec's LID report for calculations.

HYDROLOGY STUDY APPROVED

CHECKED BY: [signature] RVI NO. 33063 DATE: 8/27/2017
APPROVED BY: [signature] DATE: 8/27/2017
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS LAND DEVELOPMENT DIVISION

LOW FLOW DIVERSION TYPICAL SECTION (BASINS OP-2a, AND OP-2b)

NOT TO SCALE

NOTES:
1. NOT USED
2. PERFORATED 6" MIN PVC PIPE UNDERDRAIN SYSTEM.
3. CHOKING GRAVEL LAYER.
4. 3" PLANTING MIX.

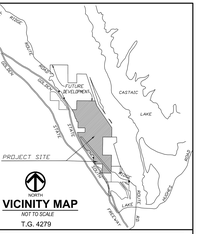
LOW FLOW DIVERSION TYPICAL SECTION (BASIN OP-4)

NOT TO SCALE

NOTES:
1. OVERFLOW DEVICE, VERTICAL RISER OR EQUIVALENT.
2. PERFORATED 6" MIN PVC PIPE UNDERDRAIN SYSTEM.
3. CHOKING GRAVEL LAYER.
4. 3" PLANTING MIX.

VICINITY MAP

NOT TO SCALE
T.G. 4279



LEGEND

- MAIN DRAINAGE BOUNDARY
- SUB-AREA BOUNDARY
- FLOW LINE
- PROPOSED STORM DRAIN- DEVELOPED AREAS
- PROPOSED STORM DRAIN- NATURAL AREAS
- PROPOSED BMP LINE- WQ FLOW
- ON-PARCEL BMP TREATMENT
- TRACT BOUNDARY

34 & UNC ... LOCATION NAMES
A ... AREA IN ACRES, Ac
Qb ... 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qbb ... 50-YR, BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qd ... 50-YR OR 25-YR, DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qbb-d ... MIXED 25- & 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qbb-d ... MIXED 25- & 50-YR, BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qpm ... WATER QUALITY FLOW IN CUBIC FEET PER SECOND, cfs
Vm ... WATER QUALITY VOLUME IN CUBIC YARDS, cy-ft
DPV ... DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, cy
Σ ... TOTAL
1 ... DESILTING BASIN WITH PAVED VEHICULAR ACCESS & TITLE FEE COT (TO BE PUBLIC / MAINTAINED)
2 ... DEBRIS CARRYING PAVED DITCH WITH 5% MIN SLOPE, OR OTHERWISE SHOWN, & SELF-CLEANING VELOCITY (TO BE PRIVATELY MAINTAINED)

PROPOSED CONDITION
DRAINAGE CONCEPT
FOR VESTING TENTATIVE TRACT NO. 73336
(NORTHLAKE PHASE 1)
IN THE UNINCORPORATED TERRITORY OF LOS ANGELES COUNTY

NORTH
SCALE: 1"=200' DATE: 03/16/2017 W.O. NO.: 5090-033-35

PREPARED FOR:
Northlake Associates, LLC
1999 AVENUE OF THE STARS, SUITE 2800, LOS ANGELES, CA 90067
ATTN: JOHN ARVIN
(310) 824-2200

PREPARED BY:
SIKAND Engineering / Planning
15230 Burbank Blvd. #100, Van Nuys, CA 91411
Phone: (818) 787- 8550 Fax: (818) 901-7451
www.sikand.com E-mail: info@sikand.com

REGISTERED PROFESSIONAL ENGINEER No. 49041 Exp. 06-30-2019 STATE OF CALIFORNIA

SHEET 1 OF 2 SHEETS

APPENDIX E

CALEEMOD MODEL OUTPUTS

Northlake Creek Avoidance Alternative

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government (Civic Center)	44.00	1000sqft	1.01	44,000.00	0
Elementary School	628.00	Student	23.00	52,502.92	0
Other Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0
Other Asphalt Surfaces	71.00	Acre	71.00	3,092,760.00	0
City Park	26.00	Acre	26.00	1,132,560.00	0
Single Family Housing	1,650.00	Dwelling Unit	264.00	2,970,000.00	4719
Single Family Housing	165.00	Dwelling Unit	26.40	297,000.00	472

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	392.72	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Northlake Creek Avoidance Alternative - Los Angeles-South Coast County, Summer

Project Characteristics - Based on DEIR inputs

Land Use - Based on PD for CAA

Construction Phase - Based on data request

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - No demolition phase

Off-road Equipment - Based on data request

Off-road Equipment - Based on data request

Off-road Equipment - Based on data request

Off-road Equipment -

Off-road Equipment - Based on data request

Off-road Equipment - Based on data request

Trips and VMT - Based on proportion of default to adjusted worker and vendor trips from the DEIR and applied to the CalEEMod default values for the CAA.

Grading -

Vehicle Trips - Based on VMT and DEIR

Woodstoves - No wood fireplaces

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	550.00	1,935.00
tblConstructionPhase	NumDays	7,750.00	1,565.00
tblConstructionPhase	NumDays	7,750.00	781.00
tblConstructionPhase	NumDays	775.00	652.00
tblConstructionPhase	NumDays	775.00	1,304.00

tblConstructionPhase	NumDays	775.00	521.00
tblConstructionPhase	NumDays	300.00	261.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	1,542.75	455.00
tblFireplaces	NumberNoFireplace	181.50	1,360.00
tblFireplaces	NumberWood	90.75	0.00
tblGrading	AcresOfGrading	18,256.00	1,937.50
tblGrading	AcresOfGrading	652.00	3,260.00
tblGrading	AcresOfGrading	260.50	1,302.50
tblGrading	MaterialExported	0.00	8,279,040.00
tblLandUse	LotAcreage	1.21	23.00
tblLandUse	LotAcreage	53.57	26.40
tblLandUse	LotAcreage	535.71	264.00
tblOffRoadEquipment	HorsePower	212.00	600.00
tblOffRoadEquipment	HorsePower	212.00	436.00
tblOffRoadEquipment	HorsePower	212.00	100.00
tblOffRoadEquipment	HorsePower	212.00	290.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	25.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	392.72
tblTripsAndVMT	VendorTripNumber	917.00	47.00
tblTripsAndVMT	VendorTripNumber	917.00	19.00
tblTripsAndVMT	WorkerTripNumber	95.00	20.00

tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	11.00
tblTripsAndVMT	WorkerTripNumber	2,501.00	262.00
tblTripsAndVMT	WorkerTripNumber	500.00	52.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	2,501.00	131.00
tblVehicleTrips	CC_TL	8.40	1.07
tblVehicleTrips	CNW_TL	6.90	1.07
tblVehicleTrips	CW_TL	16.60	1.07
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	13.24
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	13.24
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	13.24
tblVehicleTrips	HW_TTP	40.20	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	22.75	53.80
tblVehicleTrips	ST_TR	0.00	0.91
tblVehicleTrips	ST_TR	9.91	9.30
tblVehicleTrips	SU_TR	16.74	53.80
tblVehicleTrips	SU_TR	0.00	0.91
tblVehicleTrips	SU_TR	8.62	8.10
tblVehicleTrips	WD_TR	1.89	53.80
tblVehicleTrips	WD_TR	1.29	1.62
tblVehicleTrips	WD_TR	27.92	0.91

tblVehicleTrips	WD_TR	9.52	8.96
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	65.0929	1,102.5924	435.4986	1.9012	161.1172	26.7478	187.8650	52.2440	24.6796	76.9236	0.0000	200,845.9813	200,845.9813	28.6692	0.0000	201,562.7102
2019	57.0790	984.7950	394.0620	1.8522	90.9513	22.2900	113.2414	29.5238	20.5724	50.0962	0.0000	195,053.7260	195,053.7260	27.6151	0.0000	195,744.1024
2020	68.9008	941.0281	407.1711	1.9168	94.9648	21.4935	116.4583	30.5911	19.8599	50.4510	0.0000	200,244.2608	200,244.2608	28.2499	0.0000	200,950.5094
2021	17.4591	49.4651	49.4241	0.1105	12.5734	2.2437	14.8172	4.6377	2.0915	6.7291	0.0000	10,864.8102	10,864.8102	1.8128	0.0000	10,910.1297
2022	16.8080	43.1771	47.5612	0.1091	12.5735	1.8637	14.4372	4.6377	1.7383	6.3760	0.0000	10,725.1417	10,725.1417	1.7946	0.0000	10,770.0061
2023	16.3101	37.7047	45.8709	0.1074	12.5735	1.5766	14.1501	4.6377	1.4710	6.1087	0.0000	10,556.5550	10,556.5550	1.7712	0.0000	10,600.8337
2024	14.3533	18.6322	28.9825	0.0738	3.8107	0.7043	4.5150	1.0175	0.6656	1.6831	0.0000	7,293.1079	7,293.1079	0.7632	0.0000	7,312.1870
2025	16.1563	35.6748	50.3491	0.1155	12.7970	1.3663	14.1633	4.6970	1.2721	5.9691	0.0000	11,338.6689	11,338.6689	2.0193	0.0000	11,389.1514
2026	15.6227	33.4285	45.4804	0.0950	11.1535	1.3527	12.5062	4.2570	1.2596	5.5166	0.0000	9,240.2861	9,240.2861	1.9473	0.0000	9,288.9673
2027	15.2419	30.4540	39.1137	0.0850	11.0641	1.2251	12.2891	4.2333	1.1421	5.3755	0.0000	8,271.8932	8,271.8932	1.6738	0.0000	8,313.7386
2028	1.7866	13.9575	19.6612	0.0433	1.5859	0.5381	2.1240	0.4234	0.5060	0.9293	0.0000	4,217.8777	4,217.8777	0.6488	0.0000	4,234.0972
Maximum	**68.9008**	**1,102.5924**	**435.4986**	**1.9168**	**161.1172**	**26.7478**	**187.8650**	**52.2440**	**24.6796**	**76.9236**	**0.0000**	**200,845.9813**	**200,845.9813**	**28.6692**	**0.0000**	**201,562.7102**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	65.0929	1,102.5924	435.4986	1.9012	130.9873	26.7478	157.7351	37.5945	24.6796	62.2741	0.0000	200,845.9812	200,845.9812	28.6692	0.0000	201,562.7102
2019	57.0790	984.7950	394.0620	1.8522	71.8418	22.2900	94.1319	20.9320	20.5724	41.5044	0.0000	195,053.7259	195,053.7259	27.6151	0.0000	195,744.1024
2020	68.9008	941.0281	407.1711	1.9168	75.8553	21.4935	97.3488	21.9994	19.8599	41.8593	0.0000	200,244.2607	200,244.2607	28.2499	0.0000	200,950.5094
2021	17.4591	49.4651	49.4241	0.1105	7.2827	2.2437	9.5264	2.4438	2.0915	4.5353	0.0000	10,864.8102	10,864.8102	1.8128	0.0000	10,910.1297
2022	16.8080	43.1771	47.5612	0.1091	7.2827	1.8637	9.1464	2.4438	1.7383	4.1822	0.0000	10,725.1417	10,725.1417	1.7946	0.0000	10,770.0061
2023	16.3101	37.7047	45.8709	0.1074	7.2827	1.5766	8.8594	2.4438	1.4710	3.9148	0.0000	10,556.5550	10,556.5550	1.7712	0.0000	10,600.8337
2024	14.3533	18.6322	28.9825	0.0738	3.8107	0.7043	4.5150	1.0175	0.6656	1.6831	0.0000	7,293.1079	7,293.1079	0.7632	0.0000	7,312.1870
2025	16.1563	35.6748	50.3491	0.1155	7.5063	1.3663	8.8725	2.5031	1.2721	3.7752	0.0000	11,338.6689	11,338.6689	2.0193	0.0000	11,389.1514
2026	15.6227	33.4285	45.4804	0.0950	5.8627	1.3527	7.2154	2.0632	1.2596	3.3227	0.0000	9,240.2861	9,240.2861	1.9473	0.0000	9,288.9673
2027	15.2419	30.4540	39.1137	0.0850	5.7733	1.2251	6.9984	2.0394	1.1421	3.1816	0.0000	8,271.8932	8,271.8932	1.6738	0.0000	8,313.7386
2028	1.7866	13.9575	19.6612	0.0433	1.5859	0.5381	2.1240	0.4234	0.5060	0.9293	0.0000	4,217.8777	4,217.8777	0.6488	0.0000	4,234.0972
Maximum	**68.9008**	**1,102.5924**	**435.4986**	**1.9168**	**130.9873**	**26.7478**	**157.7351**	**37.5945**	**24.6796**	**62.2741**	**0.0000**	**200,845.9812**	**200,845.9812**	**28.6692**	**0.0000**	**201,562.7102**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**23.54**	**0.00**	**19.76**	**31.93**	**0.00**	**20.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	80.1354	16.8192	156.1000	0.1043		2.0508	2.0508		2.0508	2.0508	0.0000	19,540.3794	19,540.3794	0.6280	0.3533	19,661.3607
Energy	1.5030	12.8602	5.5842	0.0820		1.0385	1.0385		1.0385	1.0385		16,396.5999	16,396.5999	0.3143	0.3006	16,494.0367
Mobile	28.6141	132.7080	419.9395	1.8773	181.4944	1.2559	182.7503	48.5535	1.1664	49.7200		191,856.5884	191,856.5884	7.9469		192,055.2601
Total	**110.2525**	**162.3873**	**581.6237**	**2.0636**	**181.4944**	**4.3451**	**185.8396**	**48.5535**	**4.2557**	**52.8092**	**0.0000**	**227,793.5677**	**227,793.5677**	**8.8891**	**0.6539**	**228,210.6575**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	80.1354	16.8192	156.1000	0.1043		2.0508	2.0508		2.0508	2.0508	0.0000	19,540.3794	19,540.3794	0.6280	0.3533	19,661.3607
Energy	1.5030	12.8602	5.5842	0.0820		1.0385	1.0385		1.0385	1.0385		16,396.5999	16,396.5999	0.3143	0.3006	16,494.0367
Mobile	28.6141	132.7080	419.9395	1.8773	181.4944	1.2559	182.7503	48.5535	1.1664	49.7200		191,856.5884	191,856.5884	7.9469		192,055.2601
Total	**110.2525**	**162.3873**	**581.6237**	**2.0636**	**181.4944**	**4.3451**	**185.8396**	**48.5535**	**4.2557**	**52.8092**	**0.0000**	**227,793.5677**	**227,793.5677**	**8.8891**	**0.6539**	**228,210.6575**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	12/31/2018	5	261	
2	Grading	Grading	7/1/2018	12/29/2020	5	652	
3	Fine Grading 1	Grading	10/1/2018	9/28/2023	5	1304	
4	Utilities 1	Trenching	2/1/2019	12/30/2020	5	499	
5	Building Construction	Building Construction	1/1/2020	12/30/2025	5	1565	
6	Architectural Coating	Architectural Coating	8/1/2020	12/31/2027	5	1935	
7	Utilities 2	Trenching	7/1/2025	2/26/2026	5	173	
8	Fine Grading 2	Grading	10/1/2025	9/29/2027	5	521	
9	Building Construction 2	Building Construction	1/1/2026	12/28/2028	5	781	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1937.5

Acres of Paving: 73

Residential Indoor: 6,615,675; Residential Outdoor: 2,205,225; Non-Residential Indoor: 144,754; Non-Residential Outdoor: 48,251; Striped Parking Area: 190,793 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	600	0.43
Grading	Crawler Tractors	2	8.00	436	0.43
Grading	Crawler Tractors	2	8.00	100	0.43
Grading	Crawler Tractors	2	8.00	290	0.43
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	25	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Fine Grading 1	Excavators	2	8.00	158	0.38
Fine Grading 1	Graders	1	8.00	187	0.41
Fine Grading 1	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading 1	Scrapers	0	8.00	367	0.48
Fine Grading 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Utilities 1	Excavators	1	6.00	158	0.38
Utilities 1	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Utilities 2	Excavators	1	6.00	158	0.38
Utilities 2	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Fine Grading 2	Excavators	2	8.00	158	0.38
Fine Grading 2	Graders	1	8.00	187	0.41

Fine Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading 2	Scrapers	0	8.00	367	0.48
Fine Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction 2	Cranes	1	7.00	231	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	38	20.00	0.00	1,034,880.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading 1	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities 1	3	11.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	262.00	47.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	52.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities 2	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading 2	6	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	131.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0995	0.0751	0.9721	2.2700e-003	0.2012	1.7900e-003	0.2030	0.0534	1.6500e-003	0.0550		225.6642	225.6642	8.4600e-003		225.8758
Total	**0.0995**	**0.0751**	**0.9721**	**2.2700e-003**	**0.2012**	**1.7900e-003**	**0.2030**	**0.0534**	**1.6500e-003**	**0.0550**		**225.6642**	**225.6642**	**8.4600e-003**		**225.8758**

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0995	0.0751	0.9721	2.2700e-003	0.2012	1.7900e-003	0.2030	0.0534	1.6500e-003	0.0550		225.6642	225.6642	8.4600e-003		225.8758
Total	**0.0995**	**0.0751**	**0.9721**	**2.2700e-003**	**0.2012**	**1.7900e-003**	**0.2030**	**0.0534**	**1.6500e-003**	**0.0550**		**225.6642**	**225.6642**	**8.4600e-003**		**225.8758**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					22.6537	0.0000	22.6537	10.4884	0.0000	10.4884			0.0000			0.0000
Off-Road	41.7253	510.2829	286.9201	0.5391		20.7005	20.7005		19.0445	19.0445		54,261.8472	54,261.8472	16.8925		54,684.1585
Total	**41.7253**	**510.2829**	**286.9201**	**0.5391**	**22.6537**	**20.7005**	**43.3542**	**10.4884**	**19.0445**	**29.5329**		**54,261.8472**	**54,261.8472**	**16.8925**		**54,684.1585**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	15.7545	512.7803	106.1020	1.2865	111.2097	1.9507	113.1604	28.0921	1.8662	29.9583		138,980.9822	138,980.9822	9.5677		139,220.1734
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1105	0.0834	1.0802	2.5200e-003	0.2236	1.9900e-003	0.2256	0.0593	1.8400e-003	0.0611		250.7380	250.7380	9.4000e-003		250.9731
Total	**15.8650**	**512.8637**	**107.1821**	**1.2890**	**111.4333**	**1.9526**	**113.3859**	**28.1514**	**1.8681**	**30.0194**		**139,231.7202**	**139,231.7202**	**9.5771**		**139,471.1465**

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8349	0.0000	8.8349	4.0905	0.0000	4.0905			0.0000			0.0000
Off-Road	41.7253	510.2829	286.9200	0.5391		20.7005	20.7005		19.0445	19.0445	0.0000	54,261.8471	54,261.8471	16.8925		54,684.1584
Total	**41.7253**	**510.2829**	**286.9200**	**0.5391**	**8.8349**	**20.7005**	**29.5354**	**4.0905**	**19.0445**	**23.1350**	**0.0000**	**54,261.8471**	**54,261.8471**	**16.8925**		**54,684.1584**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	15.7545	512.7803	106.1020	1.2865	111.2097	1.9507	113.1604	28.0921	1.8662	29.9583		138,980.9822	138,980.9822	9.5677		139,220.1734
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1105	0.0834	1.0802	2.5200e-003	0.2236	1.9900e-003	0.2256	0.0593	1.8400e-003	0.0611		250.7380	250.7380	9.4000e-003		250.9731
Total	**15.8650**	**512.8637**	**107.1821**	**1.2890**	**111.4333**	**1.9526**	**113.3859**	**28.1514**	**1.8681**	**30.0194**		**139,231.7202**	**139,231.7202**	**9.5771**		**139,471.1465**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					22.6537	0.0000	22.6537	10.4884	0.0000	10.4884			0.0000			0.0000
Off-Road	38.8159	464.2972	265.3755	0.5390		18.8007	18.8007		17.2966	17.2966		53,376.9270	53,376.9270	16.8879		53,799.1243
Total	**38.8159**	**464.2972**	**265.3755**	**0.5390**	**22.6537**	**18.8007**	**41.4543**	**10.4884**	**17.2966**	**27.7850**		**53,376.9270**	**53,376.9270**	**16.8879**		**53,799.1243**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	14.9152	486.1446	103.6508	1.2682	59.1884	1.7839	60.9723	15.3233	1.7067	17.0300		137,218.6999	137,218.6999	9.4501		137,454.9521
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0999	0.0734	0.9643	2.4400e-003	0.2236	1.9300e-003	0.2255	0.0593	1.7800e-003	0.0611		242.5906	242.5906	8.3300e-003		242.7989
Total	**15.0151**	**486.2181**	**104.6151**	**1.2706**	**59.4119**	**1.7858**	**61.1978**	**15.3826**	**1.7085**	**17.0910**		**137,461.2905**	**137,461.2905**	**9.4584**		**137,697.7510**

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8349	0.0000	8.8349	4.0905	0.0000	4.0905			0.0000			0.0000
Off-Road	38.8159	464.2972	265.3755	0.5390		18.8007	18.8007		17.2966	17.2966	0.0000	53,376.9270	53,376.9270	16.8879		53,799.1243
Total	**38.8159**	**464.2972**	**265.3755**	**0.5390**	**8.8349**	**18.8007**	**27.6356**	**4.0905**	**17.2966**	**21.3871**	**0.0000**	**53,376.9270**	**53,376.9270**	**16.8879**		**53,799.1243**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	14.9152	486.1446	103.6508	1.2682	59.1884	1.7839	60.9723	15.3233	1.7067	17.0300		137,218.6999	137,218.6999	9.4501		137,454.9521
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0999	0.0734	0.9643	2.4400e-003	0.2236	1.9300e-003	0.2255	0.0593	1.7800e-003	0.0611		242.5906	242.5906	8.3300e-003		242.7989
Total	**15.0151**	**486.2181**	**104.6151**	**1.2706**	**59.4119**	**1.7858**	**61.1978**	**15.3826**	**1.7085**	**17.0910**		**137,461.2905**	**137,461.2905**	**9.4584**		**137,697.7510**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					22.6537	0.0000	22.6537	10.4884	0.0000	10.4884			0.0000			0.0000
Off-Road	36.4364	425.9466	247.6808	0.5391		17.2078	17.2078		15.8312	15.8312		52,216.9923	52,216.9923	16.8880		52,639.1931
Total	**36.4364**	**425.9466**	**247.6808**	**0.5391**	**22.6537**	**17.2078**	**39.8615**	**10.4884**	**15.8312**	**26.3196**		**52,216.9923**	**52,216.9923**	**16.8880**		**52,639.1931**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	13.8645	456.3959	101.1331	1.2537	59.3912	1.4567	60.8478	15.3732	1.3936	16.7668		135,840.9863	135,840.9863	9.2462		136,072.1413
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0920	0.0655	0.8757	2.3600e-003	0.2236	1.8700e-003	0.2254	0.0593	1.7200e-003	0.0610		235.2226	235.2226	7.4200e-003		235.4080
Total	**13.9565**	**456.4614**	**102.0088**	**1.2560**	**59.6147**	**1.4585**	**61.0732**	**15.4325**	**1.3953**	**16.8278**		**136,076.2088**	**136,076.2088**	**9.2536**		**136,307.5493**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8349	0.0000	8.8349	4.0905	0.0000	4.0905			0.0000			0.0000
Off-Road	36.4364	425.9466	247.6808	0.5391		17.2078	17.2078		15.8312	15.8312	0.0000	52,216.9922	52,216.9922	16.8880		52,639.1931
Total	**36.4364**	**425.9466**	**247.6808**	**0.5391**	**8.8349**	**17.2078**	**26.0428**	**4.0905**	**15.8312**	**19.9217**	**0.0000**	**52,216.9922**	**52,216.9922**	**16.8880**		**52,639.1931**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	13.8645	456.3959	101.1331	1.2537	59.3912	1.4567	60.8478	15.3732	1.3936	16.7668		135,840.9863	135,840.9863	9.2462		136,072.1413
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0920	0.0655	0.8757	2.3600e-003	0.2236	1.8700e-003	0.2254	0.0593	1.7200e-003	0.0610		235.2226	235.2226	7.4200e-003		235.4080
Total	**13.9565**	**456.4614**	**102.0088**	**1.2560**	**59.6147**	**1.4585**	**61.0732**	**15.4325**	**1.3953**	**16.8278**		**136,076.2088**	**136,076.2088**	**9.2536**		**136,307.5493**

3.4 Fine Grading 1 - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	2.7963	31.1387	17.5159	0.0317		1.5152	1.5152		1.3940	1.3940		3,194.8307	3,194.8307	0.9946		3,219.6956
Total	**2.7963**	**31.1387**	**17.5159**	**0.0317**	**8.6733**	**1.5152**	**10.1885**	**3.5965**	**1.3940**	**4.9905**		**3,194.8307**	**3,194.8307**	**0.9946**		**3,219.6956**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0442	0.0334	0.4321	1.0100e-003	0.0894	8.0000e-004	0.0902	0.0237	7.4000e-004	0.0245		100.2952	100.2952	3.7600e-003		100.3892
Total	**0.0442**	**0.0334**	**0.4321**	**1.0100e-003**	**0.0894**	**8.0000e-004**	**0.0902**	**0.0237**	**7.4000e-004**	**0.0245**		**100.2952**	**100.2952**	**3.7600e-003**		**100.3892**

3.4 Fine Grading 1 - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	2.7963	31.1387	17.5159	0.0317		1.5152	1.5152		1.3940	1.3940	0.0000	3,194.8307	3,194.8307	0.9946		3,219.6956
Total	**2.7963**	**31.1387**	**17.5159**	**0.0317**	**3.3826**	**1.5152**	**4.8978**	**1.4026**	**1.3940**	**2.7966**	**0.0000**	**3,194.8307**	**3,194.8307**	**0.9946**		**3,219.6956**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0442	0.0334	0.4321	1.0100e-003	0.0894	8.0000e-004	0.0902	0.0237	7.4000e-004	0.0245		100.2952	100.2952	3.7600e-003		100.3892
Total	**0.0442**	**0.0334**	**0.4321**	**1.0100e-003**	**0.0894**	**8.0000e-004**	**0.0902**	**0.0237**	**7.4000e-004**	**0.0245**		**100.2952**	**100.2952**	**3.7600e-003**		**100.3892**