TO: Mike Canfield

FROM: Phuong Nguyen, PE; CR Associates

DATE: July 27, 2022

RE: Beaumont Pointe Project Fire Evacuation Analysis – Technical Memorandum

The purpose of this technical memorandum is to assess the time required for emergency evacuation under Existing and Existing With Project Conditions, models under various likely scenarios for wind-driven fire that results in the Beaumont Pointe project area evacuation.[1]All of the modeled scenarios assumed that evacuating vehicles would not depend on contra-flow lanes, leaving these lanes available for emergency responder's to access the project site.[2]

Background

In California, wildfire-related large-scale evacuations are almost exclusively associated with wildfires that occur on extreme fire weather days, also known as "Red Flag Warning" days, and occur when relative humidity drops to low levels and strong winds from the north/northeast are sustained. With climate change, it may be that periods in which wildfire occurs may increase over time. During such periods, vegetation is more likely to ignite and fire spread is more difficult to control. In Riverside County, these extreme weather days typically occur during limited periods in the late summer, fall, and occasionally, in the spring, but may occur at other times on a less frequent basis. Currently, it is not common to experience more than 20 to 30 Red Flag Warning days in a typical year. Wildfires that occur during these periods of extreme weather are driven by winds – sometimes referred to as "Santa Ana" winds – that come from the north or east and blow toward the south or west. Fires driven by these winds move very quickly, making them difficult to control. In response to such fires, emergency managers typically activate pre-planned evacuation triggers that require down-wind communities to evacuate and move to nearby urbanized areas prior to the fire's encroachment.

Wildfires occurring during non-extreme weather days behave in a much less aggressive manner and pose fewer dangers to life and property because they are easier to control. Terrain and fuel are typically the wildfire drivers, and during these non-extreme weather days, vegetation is much more difficult to ignite and does not spread fire as rapidly.

In these situations, firefighters have a very high success rate of controlling fires and keeping them under 10 acres. CAL FIRE estimates that 90% of all vegetation fires occur during normal, onshore weather conditions and that such fires account for only 10% of the land area burned. Conversely, the 10% of wildfires that occur during extreme fire weather account for 90% of the land area burned. This data highlights that the most dangerous fire conditions are those related to a fire that moves rapidly due to high winds and low humidity. While it is possible that a fire driven by onshore wind (i.e., from the west) could require evacuation of the Project, such an event would be highly unusual. This scenario was modeled (refer to Fire Protection Plan prepared by Dudek 12/2021) and indicates that depending on the ignition start location, there is substantial time to move people off the Site (defined below), if considered necessary. Moreover, due to the reduced fire behavior during normal weather periods, the evacuation would not be expected to be a mass-evacuation of large areas, and most of the Project

[1] This memorandum was prepared with technical fire behavior input from Dudek's fire protection planning team.

[2] Refer to Section 4.1 of the Beaumont Pointe Specific Plan County of Riverside Fire Protection Plan (FPP) for the emergency response and service analysis.

area population would be anticipated to remain at their locations and within their communities, with a more targeted evacuation declaration.

For the reasons given above, the evacuation analysis set forth below evaluates evacuation scenarios that assume a Santa Ana-wind driven fire from the north and/or east. This fire condition is the one most likely to require a mass evacuation, and the one that creates the most risk to human life.

Project Description

The Beaumont Pointe project (Project) is located in unincorporated Riverside County, west of Jack Rabbit Trail and south of SR-60, and within the sphere of influence of City of Beaumont, CA. The Proposed Project plans to develop an existing 539.9-acre vacant parcel (Site) with five (5) warehouse buildings, a 125-room hotel, 246,000 square feet of general commercial ("retail"). **Figure 1** displays the Site location. The Proposed Project will also construct an emergency exit route, adjacent to the existing Jack Rabbit Trail, connecting to the Jack Rabbit Trail/SR-60 interchange. This route is for emergency exit only and would not permit entry to the Site from SR-60. The route would be gated within the Site boundary and would be posted with warning signage regarding its use only during emergencies. The gate would be fitted with RCFD approved means of remote opening including hard-wired remote opening by on-site personnel, physical opening by on-site personnel and cell-based remote opening via RCFD or a 24/7 security company under a long-term agreement.

An evacuation analysis was performed for the Project to determine how long it would take for employees and patrons of the Beaumont Pointe Project to evacuate to nearby urban areas in case of a fire emergency. Traffic evacuating from the Project and nearby developments are anticipated to use both Jack Rabbit Trail/SR-60 and West 4th Street. SR-60 is identified in the City of Beaumont Safety Element as an emergency evacuation route. The Safety Element also identified the future Westward Avenue as an evacuation route. Since Westward Avenue is not yet constructed, West 4th Street, a similar and parallel roadway will serve as an emergency evacuation route for the Project and the surrounding land uses. Once built, Westward Avenue can provide additional evacuation capacity, reducing the surrounding area's evacuation time, including the Project. A total of 12 evacuation scenarios were analyzed:

- Scenario 1 – Full Project with all Evacuation Routes Available: This scenario assumes that all of the parking spaces provided by the Project are occupied and that this is the number of vehicles to be evacuated. Additionally, this scenario assumes vehicles would utilize SR-60 and West 4th Street as evacuation routes.
- Scenario 2 – Full Project with SR-60 Only: This scenario is identical to Scenario 1 with only one exception; SR-60 is assumed to be the only evacuation route available.
- Scenario 3 – Full Project with West 4th Street Only: This scenario is identical to Scenario 1 with only one exception; West 4th Street is assumed to be the only evacuation route available.
- Scenario 4 –ITE Weekday Parking Generation Rates with all Evacuation Routes Available: This scenario calculates the parking demand for the Project utilizing the parking generation rates found in the *Institute of Transportation Engineers (ITE) Parking Generation Manual, 5th Edition*[3], and assumes that these are the trips to be evacuated. The ITE Parking Generation Rates reflect the average demand anticipated for the proposed Project. Similar to Scenario 1, this scenario also assumes vehicles would utilize SR-60 and West 4th Street as evacuation routes. The ITE Parking Generation Manual is the nationally accepted standard for determining average parking demand. The average parking demand usually reflects the period with the

[3] https://www.ite.org/technical-resources/topics/trip-and-parking-generation/

highest parking demand (i.e. noon for a warehouse) as opposed to the period with the highest commuter traffic (i.e. morning or evening peak). ITE parking ratio worksheets are provided in Attachment 1.

- Scenario 5 –ITE Weekday Parking Generation Rates with SR-60 Only: This scenario is identical to Scenario 4 with only one exception; SR-60 is assumed to be the only evacuation route available.
- Scenario 6 - ITE Weekday Parking Generation Rates with West 4th Street Only: This scenario is identical to Scenario 4 with only one exception; West 4th Street is assumed to be the only evacuation route available.
- Scenario 7 – Weekend with all Evacuation Routes Available: This scenario assumes evacuation during an average weekend day. Since the retail component generates more weekend trips (parking demand), this scenario assumed full occupancy of the retail component. Since the ITE Parking Generation Manual does not have a weekend parking rate for the industrial component, the parking demand was derived from the trip rates for General Light Industrial land uses found in the ITE Trip Generation Manual. The ITE Trip Generation Manual indicates that the weekday trip generation for General Light Industrial land uses is 4.87 trips per 1,000 square feet, while the weekend trip generation rate is 0.69 trips per 1,000 square feet. Comparing weekday and weekend trip generation rates for this land use shows that the weekend trip generation rate represents 14.2% of the weekday trip generation rate. Therefore, for a conservative analysis, it is assumed that 20% of the parking spaces in the industrial area are occupied. Additionally, this scenario assumes vehicles would utilize SR-60 and West 4th Street as evacuation routes.
- Scenario 8 – Weekend with SR-60 Only: This scenario is identical to Scenario 7 with only one exception; SR-60 is assumed to be the only evacuation route available.
- Scenario 9 – Weekend with West 4th Street Only: This scenario is identical to Scenario 7 with only one exception; West 4th Street is assumed to be the only evacuation route available.
- Scenario 10 – Hidden Canyon Industrial Park with all Evacuation Routes Available - This scenario determines the anticipated evacuation time for the Hidden Canyon Industrial Park, which is currently under construction. Based on a preliminary site plan, the Hidden Canyon Industrial Park is anticipated to provide a combined total of 808 standard parking spaces and 848 trailer parking spaces.
- Scenario 11 - Hidden Canyon Industrial Park with SR-60 Only: This scenario is identical to Scenario 10 with only one exception; SR-60 is assumed to be the only evacuation route available.
- Scenario 12 –Hidden Canyon Industrial Park with West 4th Street Only: This scenario is identical to Scenario 10 with only one exception; West 4th Street is assumed to be the only evacuation route available.
- Scenario 13 – Full Project with Hidden Canyon Industrial Park with all Evacuation Routes Available - This scenario is the same as Scenario 10, with the additional traffic from the proposed Project.
- Scenario 14 - Full Project with Hidden Canyon Industrial Park with SR-60 Only: This scenario is identical to Scenario 13 with only one exception; SR-60 is assumed to be the only evacuation route available.

- Scenario 15 – Full Project with Hidden Canyon Industrial Park with West 4th Street Only: This scenario is identical to Scenario 13 with only one exception; West 4th Street is assumed to be the only evacuation route available.
- Scenario 16 – Hidden Canyon Industrial Park & Olive Wood with all Evacuation Routes Available: This scenario assumes the evacuation of the Hidden Canyon Industrial Park and the Olive Wood development via both SR-60 and West 4th Street. Olive Wood would evacuate via West 4th Street Only.
- Scenario 17 – Full Project with Hidden Canyon Industrial Park & Olive Wood with all Evacuation Routes Available: This scenario is similar to Scenario 16 with the addition of the Project.

Scenarios 1 through 9 evaluate the full project evacuation times under various conditions and assumptions. Scenarios 10 through 17 evaluate the project's effect on the surrounding land uses' evacuation time.

For a reasonable analysis, these scenarios assumed that two percent (2%) of the evacuating vehicles are heavy vehicles (trucks with trailers). Two percent is the nationally acceptable ratio of heavy vehicles to all vehicles. The heavy vehicle percentage was validated against the passenger and heavy vehicles number of the Amazon Beaumont fulfillment center, located at 1010 West 4th Street. Validation using aerial images shows that the heavy vehicle percentage (number of tractors aka the powered portion of the truck which contains the engine and the driver) is 1.63 percent (1.63%) of the total vehicles on site. Thus, the two percent (2%) utilized in this analysis is a conservative estimate. The validation also found that the tractors typically parked in standard parking spaces or designated tractor parking spaces, but not in trailer parking spaces. Thus, this analysis assumed that the total number of evacuating vehicles, already includes the two percent (2%) heavy vehicles. Heavy vehicle validation results are provided in Attachment 1.

Table 1 displays the number of vehicles evacuating under each scenario.

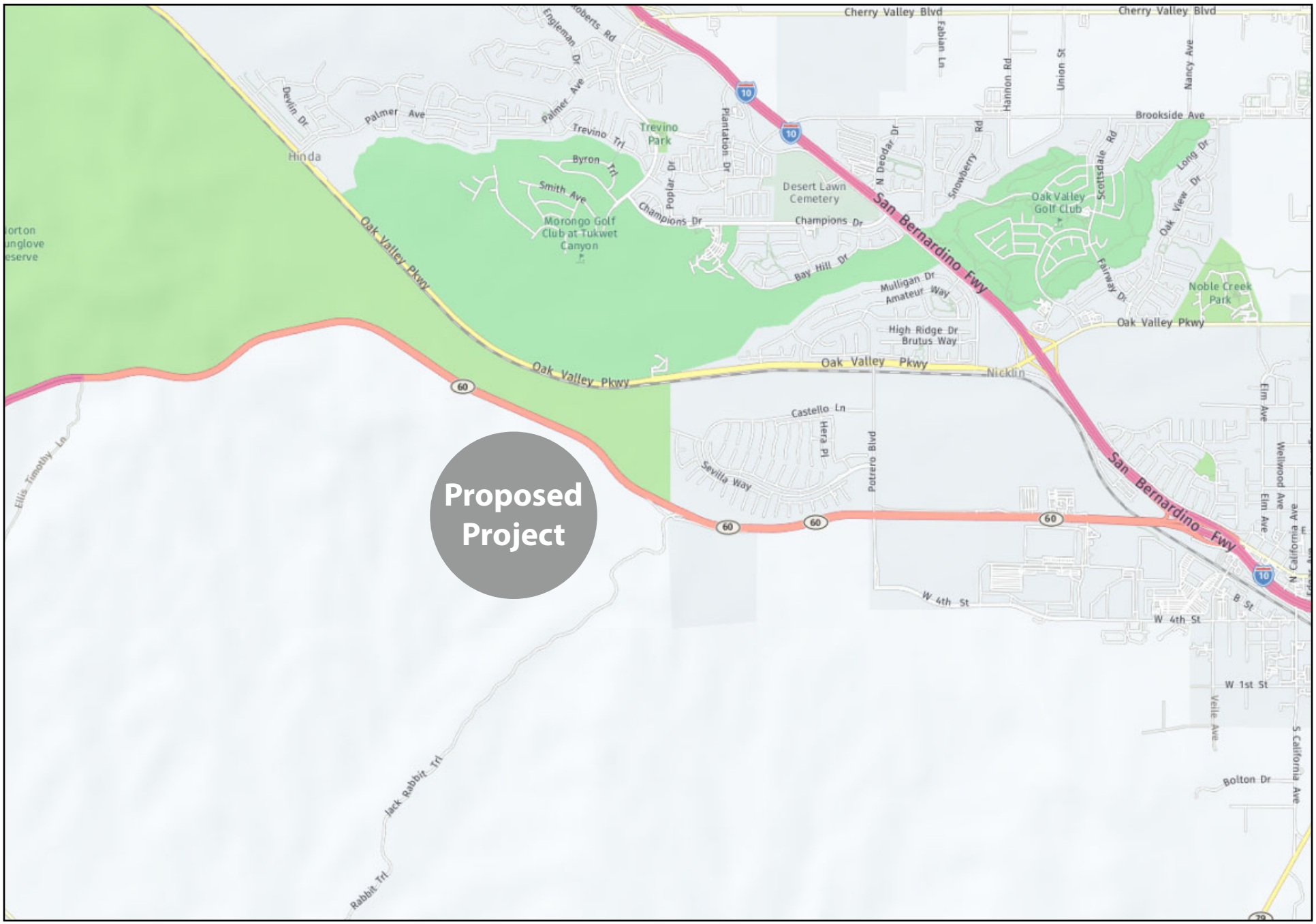
Table 1 – Evacuating Vehicles

Scenario	Parking Demand Rate	Number of Evacuating Vehicles
Scenario 1 – Full Project with all Evacuation Routes	Full Occupancy	4,866
Scenario 2 – Full Project with SR-60 Only		
Scenario 3 – Full Project with West 4th Street Only		
Scenario 4 – ITE Weekday Parking Generation Rates with all Evacuation Routes	ITE Weekday Parking Demand	3,046
Scenario 5 – ITE Weekday Parking Generation Rates with SR-60 Only		
Scenario 6 – ITE Weekday Parking Generation Rates with West 4th Street Only		
Scenario 7 – Weekend with all Evacuation Routes	Full retail occupancy & 20% Industrial	2,474
Scenario 8 – Weekend with SR-60 Only		
Scenario 9 – Weekend with West 4th Street Only		
Scenario 10 – Hidden Canyon Industrial Park with all Evacuation Routes Available	Hidden Canyon Industrial Park	808
Scenario 11 –Hidden Canyon Industrial Park with SR-60 Only		
Scenario 12 –Hidden Canyon Industrial Park with West 4th Street Only		
Scenario 13 – Full Project with Hidden Canyon Industrial Park with all Evacuation Routes Available	Hidden Canyon Industrial Park & Full Occupancy	5,674
Scenario 14 – Full Project with Hidden Canyon Industrial Park with SR-60 Only		
Scenario 15 – Full Project with Hidden Canyon Industrial Park with West 4th Street Only		
Scenario 16 - Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available	Hidden Canyon Industrial Park, Olive Wood	2,680
Scenario 17 – Full Project with Hidden Canyon Industrial Park with all Evacuation Routes Available	Hidden Canyon Industrial Park, Olive Wood, & Full Occupancy	7,546

Parking demand rate and calculations are provided in Attachment 1.

Analysis Methodology

Evacuation Time was calculated using the traffic simulation software Vissim. Vissim is a microscopic multi-modal traffic flow software utilized to simulate different traffic conditions. In the simulations, each vehicle in the traffic system is individually tracked through the model, and comprehensive measures of effectiveness, such as average vehicle speed and queueing, are collected on every vehicle during each 0.1-second of the simulation. A total of 20 simulation iterations were conducted in order to yield a reasonable sample size to determine the evacuation roadway capacities for the study area. It is assumed that evacuees are considered to reach a safe area once they enter the mainstream flow along SR-60 or West 4th Street, depending on the scenario. Detailed evacuation analysis information is provided in **Attachment 2**.



Beaumont Pointe Fire Evacuation Analysis
Technical Memorandum

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Figure 1
Project Location

Evacuation Routes

The evacuation areas described above are anticipated to utilize the following facilities as evacuation routes:

Jack Rabbit Trail – Within the Project study area, Jack Rabbit Trail is a two-lane roadway, connecting the Site to SR-60. The Project will result in vacation of existing portions of Jack Rabbit Trail and construction of a series of new roadways that will link the Jack Rabbit Trail/SR-60 interchange to the existing Jack Rabbit Trail right-of-way south of the Site. Ingress to the Site from the Jack Rabbit Trail/SR-60 interchange will be precluded and egress from the Site to the interchange will be via an emergency only exit located approximately 100 ft west of the interchange. Jack Rabbit Trail is not part of the City of Beaumont General Plan Circulation Element.

State Route 60 (SR-60) – Within the Project study area, SR-60 is a four-lane roadway with a k-rail median and a posted speed limit of 55 miles per hour (MPH). SR-60 provides a connection to Moreno Valley to the west and to Interstate 10 to the east. SR-60 is identified as an emergency evacuation route in the City of Beaumont Safety Element.

West 4th Street– Within the Project study area, West 4th Street is a two-lane roadway with a two-way left-turn lane and no posted speed limit. Sidewalks are present on both sides of the roadway, approximately 1,500 feet west of Potrero Blvd. It is constructed as a two-lane Industrial Collector, west of Potrero Boulevard, and as a 4-lane Major Roadway, between Potrero Boulevard and Veile Avenue. It is assumed that evacuating vehicles would use both the southbound travel lane and the center turn lane during an evacuation. The Safety Element identifies the future Westward Avenue as an emergency evacuation route. However, since that route is not yet constructed, West 4th Street, a similar parallel roadway will serves as a secondary evacuation route for the Project and the surround land uses. Once built, Westward Avenue can provide additional evacuation capacity, reducing the surrounding area's evacuation time, including the Project.

Figure 2 displays the evacuation route as well as the location of the emergency exit gate.

Evacuation Analysis & Results

Based on the analysis methodology described above, the time to evacuate each area under the different scenarios was calculated via traffic simulations. **Table 2** displays the calculated evacuation roadway capacity and the time it would take to evacuate under Scenarios 1 through 12.

Table 2 – Evacuation Time Summary – All Scenarios

Scenario	Total Evacuation Vehicles	Project Only Evacuation Time	Surrounding Land Uses
Scenario 1 – Full Project with all Evacuation Routes	4,866	1 hour 50 minutes	-
Scenario 2 – Full Project with SR-60 Only		2 hours 7 minutes	-
Scenario 3 – Full Project with West 4th Street Only		2 hours 37 minutes	-
Scenario 4 – ITE Weekday Parking Generation Rates with all Evacuation Routes	3,022	1 hour 1 minute	-
Scenario 5 – ITE Weekday Parking Generation Rates with SR-60 Only		1 hour 25 minutes	-

Table 2 – Evacuation Time Summary – All Scenarios

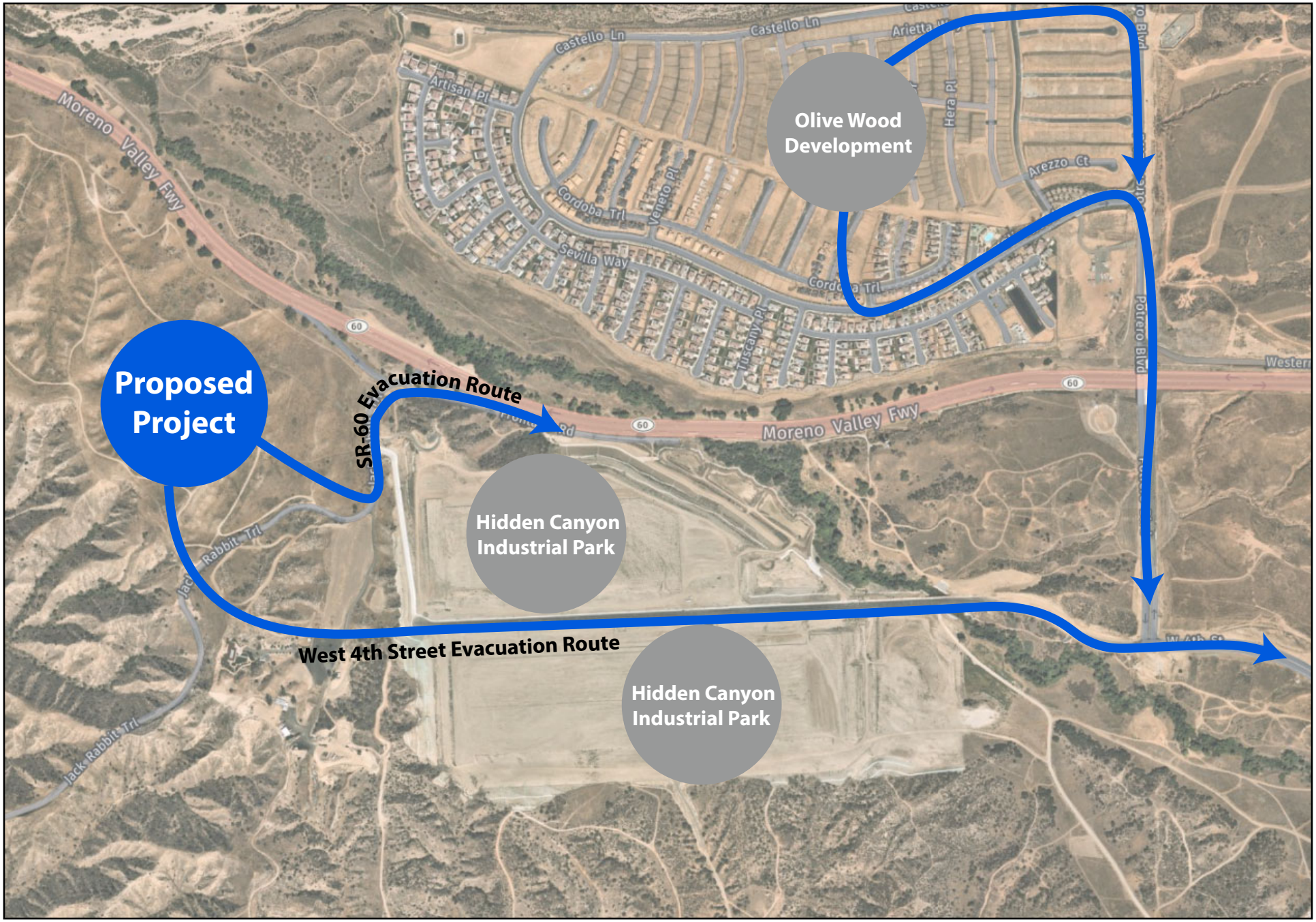
Scenario	Total Evacuation Vehicles	Project Only Evacuation Time	Surrounding Land Uses
Scenario 6 – ITE Weekday Parking Generation Rates with West 4th Street Only		1 hour 46 minutes	-
Scenario 7 – Weekend with all Evacuation Routes	2,474	55 minutes	-
Scenario 8 – Weekend with SR-60 Only		1 hour 33 minutes	-
Scenario 9 – Weekend with West 4th Street Only		1 hour 39 minutes	-
Scenario 10 – Hidden Canyon Industrial Park with all Evacuation Routes Available	808	-	27 minutes
Scenario 11 –Hidden Canyon Industrial Park with SR-60 Only		-	33 minutes
Scenario 12 –Hidden Canyon Industrial Park with West 4th Street Only		-	31 minutes
Scenario 13 – Full Project with Hidden Canyon Industrial Park with all Evacuation Routes Available	5,674	2 hours 1 minute	43 minutes
Scenario 14 – Full Project with Hidden Canyon Industrial Park with SR-60 Only		3 hours 36 minutes	59 minutes
Scenario 15 – Full Project with Hidden Canyon Industrial Park with West 4th Street Only		3 hours 32 minutes	43 minutes
Scenario 16 - Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available	2,680	-	35 minutes
Scenario 17 – Full Project with Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available	7,546	2 hours and 4 minutes	51 minutes

As shown in Table 2, it would take 1 hour and 50 minutes to evacuate the Proposed Project with two evacuation points (Scenario 1), 2 hours and 7 minutes to evacuate via SR-60 Only (Scenario 2), and 2 hours and 37 minutes to evacuate via West 4th Street Only (Scenario 3). The increase in evacuation time under Scenario 3 is due to the congestion that occurs at the intersection of Jack Rabbit Trail & West 4th Street as vehicles yield to each other during the evacuation. However, these scenarios are highly unrealistic as they assume that all parking spaces are fully occupied.

Under the ITE Weekday Parking Generation Rates scenarios (Scenario 4 through 6), it would take 1 hour and 1 minute to evacuate the Proposed Project with two evacuation points (Scenario 4), 1 hour and 25 minutes to evacuate via SR-60 Only (Scenario 5) and 1 hour 46 minutes to evacuate via West 4th Street Only (Scenario 6). These scenarios reflect a more realistic evacuation time for the Site on a weekday since it is unlikely that all industrial and retail parking spaces would be fully occupied.

During the weekend, it would take 55 minutes to evacuate the proposed Project with two evacuation points (Scenario 7), 1 hour and 33 minutes to evacuate via SR-60 Only (Scenario 8), and 1 hour 39 minutes to evacuate via West 4th Street Only (Scenario 9).

Under the cumulative condition, in which both the proposed Project and Hidden Canyon Industrial Park need to be evacuated concurrently, it would take 2 hours and 1 minute to evacuate the proposed Project and 43 minutes to evacuate Hidden Canyon Industrial Park with two evacuation points (Scenario 13), an increase of 16 minutes for the Hidden Canyon Industrial Park site (when compared to the Hidden Canyon Industrial Park only under Scenario 10). Under the SR-60 Only scenarios, it would take 3 hours and 36 minutes to evacuate the proposed Project and 59 minutes to evacuate Hidden Canyon Industrial Park via SR-60 Only (Scenario 14), an increase of 26 minutes (when compared to the Hidden Canyon Industrial Park only under Scenario 11). Under the West 4th Street only scenarios, it would take 3 hours 32 minutes to evacuate the proposed Project and 43 minutes to evacuate the Hidden Canyon Industrial Park using West 4th Street Only (Scenario 15) an increase of 26 minutes (when compared to the Hidden Canyon Industrial Park only under Scenario 12). It would take 2 hours and 4 minutes to evacuate the proposed Project and 51 minutes to evacuate both Hidden Canyon Industrial Park and Olive Wood development (Scenario 17), an increase of 16 minutes (when compared to the Hidden Canyon Industrial Park only under Scenario 16). However, these scenarios are highly unrealistic as they assumed that all parking spaces are fully occupied at both the proposed Project site and the Hidden Canyon Industrial Park site. Additionally, under all scenarios, the vast majority of the increase in evacuation time is associated with the proposed Project, and not the surrounding land uses, as the proposed Project is located on the furthest end of the study area, and vehicles from the surrounding land uses would reach the transportation network before vehicles from the proposed Project.



Beaumont Pointe Fire Evacuation Analysis
Technical Memorandum

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Figure 2
Evacuation Routes

Conclusion

It is the experience of the preparer of this evacuation analysis that evacuations are fluid events and evacuation timeframes may vary widely, depending on a variety of factors including the number of vehicles evacuating, the road capacity to move those vehicles, employee or patrons' awareness and preparedness, evacuation messaging and direction, and on-site law enforcement control. Because there are no standards for determining whether an evacuation timeframe is appropriate, deferring to actual evacuation results and similar project analysis is a typical approach. In the case of historical wildfire evacuations in Riverside County, there are several notable examples that indicate the extremely high success rate for evacuating large numbers of people and doing so in a managed and strategic way through the available technological innovations available to emergency managers. While large-scale evacuations may take several hours or more and require moving people long distances to designated areas, the success rate in Riverside County is nearly 100% safe evacuations. The examples of Southern California evacuations that included loss of life have been documented to be the result of residents who did not leave when they were directed to and then attempted a late evacuation with travel through long distances of exposed travel ways when the wildfire was overtaking the area. These examples occurred in fire environments that were more aggressive and included less maintenance then would occur at the Project area. Because the Site would be highly ignition resistant in terms of its buildings and landscape/hardscape, it is anticipated that an additional option available to emergency managers in some wildfire an other emergency scenarios will be directing people to temporarily remain on site and seek refuge within the ignition resistant buildings or other safe areas on the Site.

During a Project evacuation, it is likely law enforcement would shut down traffic along the 60 freeway to prevent people from entering an active wildfire area, diverting traffic away from the evacuation area, as well as to keep it open to evacuees who may be in harm's way during mass evacuation scenarios, such as those documented in this memorandum. Evacuees from the Project would need to travel a short distance along SR-60 or West 4th Street to reach more urban landscapes and the travel way is hardened (low fuel loading, converted landscapes, developed ignition resistant buildings and hardscape on both sides) and exposure during an evacuation would be limited. While large-scale evacuations may take several hours or more and require moving people long distances to designated areas, the success rate in Southern California is nearly 100% safe evacuations when people left when they were warned to leave. Comparing similar project analysis indicates that it is not uncommon to increase evacuation times when new communities are built and the increase in time can be 45 minutes or more based on lack of road capacity to absorb and facilitate movement of the additional vehicles. There may be scenarios where law enforcement still allows traffic into the area, such as non-mass evacuation scenarios where selective evacuation is ordered. These selective evacuation scenarios may occur during peak or non-peak traffic hours. However, under the selective evacuation scenarios, the number of evacuating vehicles would be significantly less than those analyzed in this technical memorandum, and the total evacuation time, even with peak traffic conditions would not be more than those discuss in this technical memorandum.

Currently, there are no populations relying on the same evacuation routes. However, future development (Hidden Canyon) could use this route for evacuation during some wildfire scenarios. In the scenario where Hidden Canyon evacuates simultaneously as the Project, under a worst-case condition, evacuation times vary between just over two hours and up to 3 hours and 36 minutes. These scenarios (full parking occupancy of the Project' site) will require additional emergency management pre-planning and "in the field" determinations of when evacuations are needed and how they are phased to maximize efficiency. However, as shown above, the current evacuation time for the surrounding communities ranges from 27 minutes to 35 minutes, adding the maximum number of vehicles from the Project's site only increase the evacuation time between 16 minutes and 26 minutes; ; and if that is considered too long to evacuate safely by police and fire personnel, then project site employees and visitors can be ordered not to evacuate and to shelter in place in the specific locations that

were constructed to allow for safe sheltering in place. A shelter in place plan will be prepared and provided to all on-site personnel outlining the actions to take if a shelter in place notification is provided by emergency management sources. The project buildings will be constructed of concrete which is non-combustible and highly resistant to heat. Because of the concrete/ignition resistant construction, fuel modification zone setbacks and the type of lower fire intensity vegetative fuels in the vicinity of the site, sheltering in place is considered to be a safe option if a fast-moving wildfire precludes complete evacuation of the project site.[4] The City of Beaumont has adopted the Emergency Operations Plan and Standardized Emergency Management System (SEMS) / National Incident Management System (NIMS). This plan establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts of the various emergency staff and service elements. Emergency responders will utilize this plan to determine whether the Project's visitors and employees should shelter in place or evacuate under an emergency scenario.

However, given the Project's ignition resistance and the required ignition resistance for any new development in the area, it would be possible to halt an evacuation at any point where it was determined to be safer to temporarily shelter people on the fire-hardened sites. It is appropriate to determine whether the project's modeled evacuation times are adequate when compared to various fire spread scenarios, as we provide below, and whether there are feasible options if an evacuation is considered less safe than remaining on-site. This information may be useful for emergency managers for pre-planning scenarios. Under all evacuation scenarios, the in-bound lanes were kept open to provide access for first responders, law enforcement, and for unanticipated events such as vehicles broken down during the evacuation process.

Per Attachments 3 through 10, the following fire spread modeling results were indicated.

Attachments 3 and 4. Ignition to the east under an east wind condition. The fire would be encroaching into the Project's outer fuel modification zone (FMZ) within 30 minutes and burning adjacent to the West 4th Street egress route within 30 to 60 minutes. The fire burns toward the Jack Rabbit Trail egress route within 90 to 120 minutes. When compared to the evacuation modeling timeframes, the wildfire could impact the West 4th street egress route at some point early on during the evacuation, but the northerly Jack Rabbit Trail route would remain viable. Options are important during evacuations and this scenario provides emergency managers with two travel routes and an on-site temporary sheltering option to direct people to safety. Under this scenario, the worst case, low probability scenario requires just over two hours to evacuate. A more likely scenario (project weekday with ITE Generation Rates or weekend, in each case using only SR-60) requires between 86 and 93 minutes. This timing would accommodate evacuation of the Site, but if there is also traffic from the adjacent project, there may be a need to temporarily shelter some of the population on-site, although the exposure along Jack Rabbit Trail to SR-60 is minimal given the developed nature of that corridor and it is likely that evacuations can continue to occur until all persons are off the Site and the neighboring project.

Attachments 5 and 6. Ignition to the northeast under a northeast wind condition. Within 30 minutes, the fire has burned to the SR-60 and spots across the SR-60, burning into the Project's FMZ buffers. The developed nature of the corridor along Jack Rabbit Trail to SR-60 on-ramp provides for limited fire spread and projected safe passage during an evacuation. However, given this scenario, it may be more likely that evacuation is directed out West 4th Street to provide a greater buffer between evacuating vehicles and the active fire area. Under this scenario, the worst case, low probability scenario requires just over two hours to evacuate. A more likely scenario (project weekday with ITE Generation Rates or weekend, in each case using only West 4th Street) requires between 99 and 106 minutes. This

[4] See Section 2.4.4 of the FPP for additional detail regarding shelter in place.

evacuation time for the cumulative condition (Scenario 14), an unlikely scenario, is over 3 hours, but is not considered to present a significant conflict with the wildfire scenario presented in Attachments 3 and 4 as the fire is not projected to threaten the West 4th Street egress route because of the highly developed and converted landscape that provides a hardened corridor out of the area. In addition, there is the ability to temporarily shelter people on site(s) while the fire burns quickly through the limited vegetation that would be available to it in the area.

Attachments 7 and 8. Ignition on west side of Jack Rabbit Trail at SR-60 on- and off-ramps under a northeast wind condition. This scenario includes an ignition very close to the Site. The fire quickly bumps against and into the Project's FMZ buffers and burns along the Project frontage in available fuels. The Site is largely devoid of available fuels so would not be anticipated to facilitate fire spread. The model does not continue long enough to determine the full extent of the spread to the west of the Site, but at that point would not be affecting an evacuation. Because the ignition is so close to the Project, there is little available time, but the Jack Rabbit Trail/SR-60 Interchange and West 4th Street egress routes remain open and result in successful evacuation from the Project area.

Attachments 9 and 10. Ignition off of Gilman Springs Road to the south of the Project under a wind from the south/southwest. The fire requires up to 480 minutes to arrive at the Projects FMZ buffer. This is an extended period of time that enables evacuation of the Site with several hours buffer time.

Based on the results of this comparison, evacuation of the Site is possible in all modeled scenarios. Certain scenarios noted above are projected to potentially use alternative actions, like focusing all evacuating vehicles to one of the two available routes and in one example, considering the possibility of a delayed evacuation where parts of the population could be directed to remain on-site until the fire burns out in the sparse fuels around the evacuation route, and then evacuated through one or both evacuation corridors. However, the Project is considered to be well-suited for evacuations given the two separate evacuation routes and the alternative option of temporarily seeking refuge on-site in the wide, converted landscapes that would not readily facilitate wildfire spread.

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Scenario 1 - 3 (Fully occupied)		
Land Use	**Quantity (SF/Units)**	**Demand**
Industrial - Warehouse	4,995,000	3,191
Hotel	125 Rooms	200
Indoor Retail	223,000	1135
Restaurant (Quality)	15,000	340
		4,866

Scenario 4 - 6 (ITE Average Parking Demand)		
Land Use	**ITE Rate**	**Demand**
Industrial - Warehouse	0.39 / 1,000 sq.ft.	1948
Hotel	0.83 / Room	104
Indoor Retail		
Restaurant (Quality)	43.77/Acres (Waterslide Park Rate)	994
	-	**3046**

Scenario 7 - 10 (ITE Average Parking Demand)		
Land Use	**ITE Rate**	**Demand**
Industrial - Warehouse	No Weekend Rate available. Assumed site is 25% occupied	799
Hotel	1.18 / Room	200
Indoor Retail	78.58 / Acres (Waterslide Park Rate)	1135
Restaurant (Quality)	17 / 1,000 sq.ft.	340
	-	**2474**

Hidden Canyon Industrial Park	
Land Use	**Quantity (SF/Units)**
Trailer - Building 1	423
Car - Building 1	314
Trailer - Building 2	425
Car - Building 2	494

Scenario 10 - 15 (Full Project with Hidden Canyon Industrial Park with all Evacuation Routes Available)		
Land Use	**ITE Rate**	**Demand**
Industrial - Warehouse	No Weekend Rate available. Assumed site is 25% occupied	3,191
Hotel	1.18 / Room	200
Indoor Retail	78.58 / Acres (Waterslide Park Rate)	1,135
Restaurant (Quality)	17 / 1,000 sq.ft.	340
Hidden Canyon Industrial Park (Vehicle)		808
Total		**5,674**

Scenario 16 (Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available)		
Land Use	**ITE Rate**	**Demand**
Olive Wood (Residential)	979 household @ 1.91 vehicles per household (Source: US Census)	1,872
Hidden Canyon Industrial Park (Vehicle)		808
Total		**2,680**

Scenario 17 (Full Project with Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available)		
Land Use	**ITE Rate**	**Demand**
Industrial - Warehouse	No Weekend Rate available. Assumed site is 25% occupied	3,191
Hotel	1.18 / Room	200
Indoor Retail	78.58 / Acres (Waterslide Park Rate)	1,135
Restaurant (Quality)	17 / 1,000 sq.ft.	340
Olive Wood (Residential)	979 household @ 1.91 vehicles per household (Source: US Census)	1,872
Hidden Canyon Industrial Park (Vehicle)		808
Total		**7,546**

Geographic Area Name	**Owner – vehicles per household**							**Renter – vehicles per household**					
	HH Total	0 Veh	1 veh	2 veh	3 veh	4 veh	5 veh	0 Veh	1 veh	2 veh	3 veh	4 veh	5 veh
Block Group 1, Census Tract 438.10	448	0	180	116	40	0	8	0	54	32	18	0	0
Block Group 2, Census Tract 438.10	491	24	138	128	82	30	0	0	28	61	0	0	0
Block Group 3, Census Tract 438.10	764	0	222	213	200	71	22	0	31	0	0	5	0
Block Group 1, Census Tract 438.23	715	0	11	327	211	42	29	0	63	32	0	0	0
Block Group 3, Census Tract 438.23	745	12	0	252	353	119	0	0	9	0	0	0	0
Block Group 1, Census Tract 438.24	405	7	47	36	85	44	52	31	96	7	0	0	0
Block Group 2, Census Tract 438.24	513	19	237	201	51	0	0	0	0	5	0	0	0
Block Group 4, Census Tract 438.24	486	28	132	174	33	21	10	0	24	33	31	0	0
Total Household (HH) by vehicles ownership		**90**	**968**	**1,449**	**1,058**	**331**	**126**	**31**	**306**	**172**	**52**	**9**	**5**
Total Vehicles		**9,861**											
Total Household		**5,157**											
Average Veh / HH		**1.91**											

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.6	7693	6769.4	1:52:49
2	922.3	7413.7	6491.4	1:48:11
3	925.1	7527.9	6602.8	1:50:03
4	923.9	7658.1	6734.2	1:52:14
5	922.1	7475	6552.9	1:49:13
6	923.7	7570	6646.3	1:50:46
7	923.1	7472.5	6549.4	1:49:09
8	922.7	7277.1	6354.4	1:45:54
9	924.9	7554.2	6629.3	1:50:29
10	924.1	7649.2	6725.1	1:52:05
11	922.1	7815.9	6893.8	1:54:54
12	925.1	7645.1	6720	1:52:00
13	923.7	7382.7	6459	1:47:39
14	923.9	7568.5	6644.6	1:50:45
15	924.1	7525.6	6601.5	1:50:01
16	923.6	7181.3	6257.7	1:44:18
17	922.9	7345.4	6422.5	1:47:02
18	924.5	7623.9	6699.4	1:51:39
19	924	7751.8	6827.8	1:53:48
20	922.7	7648.7	6726	1:52:06
		Average (Seconds)	6615.375	
		Time	1:50:15	

Scenario 2 – Full Project with SR-60 Only

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.6	8425.1	7501.5	2:05:01
2	923.6	8425.1	7501.5	2:05:01
3	922.3	8509.6	7587.3	2:06:27
4	925.1	8580.6	7655.5	2:07:36
5	923.9	9119.8	8195.9	2:16:36
6	922.1	8374.9	7452.8	2:04:13
7	923.7	8957.2	8033.5	2:13:54
8	923.1	8481.6	7558.5	2:05:59
9	922.7	8419.9	7497.2	2:04:57
10	924.9	8953.1	8028.2	2:13:48
11	924.1	8556.8	7632.7	2:07:13
12	922.1	8595.7	7673.6	2:07:54
13	925.1	8641.7	7716.6	2:08:37
14	923.7	8526.4	7602.7	2:06:43
15	923.9	8386.2	7462.3	2:04:22
16	924.1	8644.8	7720.7	2:08:41
17	923.6	8469.7	7546.1	2:05:46
18	922.9	8515	7592.1	2:06:32
19	924.5	8409.3	7484.8	2:04:45
20	924	8454.5	7530.5	2:05:31
		Average (Seconds)	7648.7	
		Time	2:07:29	

Scenario 3 – Full Project with West 4th Street Only

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	1158.6	10675.9	9517.3	2:38:37
2	1158.6	10675.9	9517.3	2:38:37
3	1147.7	10610.8	9463.1	2:37:43
4	1164.5	10220.8	9056.3	2:30:56
5	1158.7	10709.8	9551.1	2:39:11
6	1147.5	10669.9	9522.4	2:38:42
7	1143.7	10538	9394.3	2:36:34
8	1142.3	10454.3	9312	2:35:12
9	1143.2	10274.6	9131.4	2:32:11
10	1146.5	10746	9599.5	2:39:59
11	1149.1	10618.8	9469.7	2:37:50
12	1147.3	10798.6	9651.3	2:40:51
13	1161	10779.4	9618.4	2:40:18
14	1141.1	10276.1	9135	2:32:15
15	1148.7	10359.2	9210.5	2:33:31
16	1165.9	10610.1	9444.2	2:37:24
17	1165.5	10652.6	9487.1	2:38:07
18	1144	10457.3	9313.3	2:35:13
19	1145.5	10428.8	9283.3	2:34:43
20	1144	10641.2	9497.2	2:38:17
		Average (Seconds)	9408.735	
		Time	2:36:49	

Scenario 4 – ITE Weekday Parking Generation Rates with all Evacuation Routes

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.6	4594.8	3671.2	1:01:11
2	922.3	4545	3622.7	1:00:23
3	925.1	4510.8	3585.7	0:59:46
4	923.9	4618.5	3694.6	1:01:35
5	922.1	4564.2	3642.1	1:00:42
6	924.8	4571.7	3646.9	1:00:47
7	923.6	4678.6	3755	1:02:35
8	922.7	4497.2	3574.5	0:59:35
9	924.9	4630.9	3706	1:01:46
10	924.1	4521.1	3597	0:59:57
11	922.1	4602.9	3680.8	1:01:21
12	925.1	4551.5	3626.4	1:00:26
13	923.7	4361.8	3438.1	0:57:18
14	923.9	4449.7	3525.8	0:58:46
15	924.7	4666.2	3741.5	1:02:21
16	923.6	4705.9	3782.3	1:03:02
17	922.9	4577.9	3655	1:00:55
18	924.5	4385.4	3460.9	0:57:41
19	924	4567.6	3643.6	1:00:44
20	922.7	4529.2	3606.5	1:00:07
		Average (Seconds)	3632.83	
		Time	1:00:33	

Scenario 5 – ITE Weekday Parking Generation Rates with SR-60 Only

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	937.5	6650.9	5713.4	1:35:13
2	936.5	6459	5522.5	1:32:02
3	938	5437.3	4499.3	1:14:59
4	938.4	5614.7	4676.3	1:17:56
5	936.6	6591.1	5654.5	1:34:14
6	934.7	6443.5	5508.8	1:31:49
7	937.7	6637	5699.3	1:34:59
8	936.3	5498.7	4562.4	1:16:02
9	935.3	6483.2	5547.9	1:32:28
10	937.9	5508.8	4570.9	1:16:11
11	937.6	6627.7	5690.1	1:34:50
12	937.3	5668	4730.7	1:18:51
13	934.6	5181.2	4246.6	1:10:47
14	936.9	5289.2	4352.3	1:12:32
15	938.7	6484.5	5545.8	1:32:26
16	937.8	5606.6	4668.8	1:17:49
17	936.1	6461.5	5525.4	1:32:05
18	935.2	5525.8	4590.6	1:16:31
19	935	6582.6	5647.6	1:34:08
20	934.4	5607.2	4672.8	1:17:53
		Average (Seconds)	5081.3	
		Time	1:24:41	

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	964.6	7743.7	6779.1	1:52:59
2	962.5	7349.7	6387.2	1:46:27
3	965	7187.3	6222.3	1:43:42
4	965.6	7548.4	6582.8	1:49:43
5	962.7	7294.4	6331.7	1:45:32
6	959.6	7322.3	6362.7	1:46:03
7	963.6	7193.8	6230.2	1:43:50
8	962.1	7205.9	6243.8	1:44:04
9	960.4	7463.8	6503.4	1:48:23
10	965	7421.3	6456.3	1:47:36
11	963.3	7329.7	6366.4	1:46:06
12	963.8	7729.4	6765.6	1:52:46
13	959.3	7055.2	6095.9	1:41:36
14	962.9	7151.2	6188.3	1:43:08
15	966.5	7450.4	6483.9	1:48:04
16	964.7	7304.4	6339.7	1:45:40
17	962.1	7314	6351.9	1:45:52
18	960.2	7211.3	6251.1	1:44:11
19	960	7288.4	6328.4	1:45:28
20	959	7435.5	6476.5	1:47:56
		Average (Seconds)	6387.36	
		Time	1:46:27	

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.6	4200.7	3277.1	0:54:37
2	922.3	4159.5	3237.2	0:53:57
3	925.1	4223.3	3298.2	0:54:58
4	923.9	4299.4	3375.5	0:56:15
5	922.1	4213.8	3291.7	0:54:52
6	923.7	4175.3	3251.6	0:54:12
7	923.1	4201.7	3278.6	0:54:39
8	922.7	4166.4	3243.7	0:54:04
9	924.9	4277.5	3352.6	0:55:53
10	924.1	4243.4	3319.3	0:55:19
11	922.1	4322.7	3400.6	0:56:41
12	925.1	4313.7	3388.6	0:56:29
13	923.7	4124.8	3201.1	0:53:21
14	923.9	4058.1	3134.2	0:52:14
15	924.1	4196.3	3272.2	0:54:32
16	923.6	4320.1	3396.5	0:56:37
17	922.9	4165.4	3242.5	0:54:02
18	924.5	4159.8	3235.3	0:53:55
19	924	4157.6	3233.6	0:53:54
20	922.7	4226.4	3303.7	0:55:04
		Average (Seconds)	3286.69	
		Time	0:54:47	

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.6	6728.4	5804.8	1:36:45
2	922.3	6626.9	5704.6	1:35:05
3	925.1	6711.8	5786.7	1:36:27
4	923.9	6760	5836.1	1:37:16
5	922.1	5758.7	4836.6	1:20:37
6	923.7	6556.9	5633.2	1:33:53
7	923.1	6699	5775.9	1:36:16
8	922.7	6612.7	5690	1:34:50
9	924.9	6519.7	5594.8	1:33:15
10	924.1	6719.3	5795.2	1:36:35
11	922.1	6476.8	5554.7	1:32:35
12	925.1	6732.8	5807.7	1:36:48
13	923.7	6468.6	5544.9	1:32:25
14	923.9	6443.1	5519.2	1:31:59
15	924.1	6601.9	5677.8	1:34:38
16	923.6	6647.5	5723.9	1:35:24
17	922.9	5690.3	4767.4	1:19:27
18	924.5	6690.1	5765.6	1:36:06
19	924	6492.1	5568.1	1:32:48
20	922.7	5687.8	4765.1	1:19:25
		Average (Seconds)	5557.615	
		Time	1:32:38	

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	964.6	7110.6	6146	1:42:26
2	962.3	7011.7	6049.4	1:40:49
3	964.9	6969	6004.1	1:40:04
4	965.5	7184.1	6218.6	1:43:39
5	962.7	6939.5	5976.8	1:39:37
6	959.6	6901.4	5941.8	1:39:02
7	959.9	6970.6	6010.7	1:40:11
8	959.8	6565.4	5605.6	1:33:26
9	960.2	6878.3	5918.1	1:38:38
10	964.9	6967.7	6002.8	1:40:03
11	963.5	7134.3	6170.8	1:42:51
12	963.9	7164.8	6200.9	1:43:21
13	959.1	6852.3	5893.2	1:38:13
14	962.7	6777.6	5814.9	1:36:55
15	966.6	6627.9	5661.3	1:34:21
16	964.7	6924.4	5959.7	1:39:20
17	962	7036	6074	1:41:14
18	960.1	6835.5	5875.4	1:37:55
19	959.8	6875.4	5915.6	1:38:36
20	959	6921.9	5962.9	1:39:23
		Average (Seconds)	5970.13	
		Time	1:39:30	

Scenario 10 – Hidden Canyon Industrial Park with all Evacuation Routes Available

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	926.9	2684.8	1757.9	0:29:18
2	929	2700.9	1771.9	0:29:32
3	927.3	2590.5	1663.2	0:27:43
4	928.4	2599.3	1670.9	0:27:51
5	927.1	2564.1	1637	0:27:17
6	928.3	2664.8	1736.5	0:28:57
7	930.6	2641	1710.4	0:28:30
8	931.4	2543.6	1612.2	0:26:52
9	928.8	2519	1590.2	0:26:30
10	929.1	2457.5	1528.4	0:25:28
11	929.6	2530.9	1601.3	0:26:41
12	930.3	2568	1637.7	0:27:18
13	928.9	2618.7	1689.8	0:28:10
14	928.8	2582.1	1653.3	0:27:33
15	928.9	2433.1	1504.2	0:25:04
16	928.5	2544.6	1616.1	0:26:56
17	931.2	2581.3	1650.1	0:27:30
18	926.9	2588.4	1661.5	0:27:41
19	928.8	2660.6	1731.8	0:28:52
20	928	2559.6	1631.6	0:27:12
		Average (Seconds)	1652.8	
		Time	0:27	

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	970.7	2958	1987.3	0:33:07
2	980.3	3132	2151.7	0:35:52
3	969.6	2938.8	1969.2	0:32:49
4	974.9	2991	2016.1	0:33:36
5	977.9	3051.3	2073.4	0:34:33
6	973.5	2900.5	1927	0:32:07
7	977.3	2914.3	1937	0:32:17
8	974.3	2994.6	2020.3	0:33:40
9	979.1	2836.1	1857	0:30:57
10	968.9	2932	1963.1	0:32:43
11	974.7	3016.4	2041.7	0:34:02
12	970.1	2843.1	1873	0:31:13
13	971.7	3007.8	2036.1	0:33:56
14	976.9	2947	1970.1	0:32:50
15	973.8	2932.6	1958.8	0:32:39
16	977.3	2868.8	1891.5	0:31:31
17	981	2979.5	1998.5	0:33:18
18	974	3022.5	2048.5	0:34:08
19	972.9	2998.4	2025.5	0:33:45
20	974.2	2929.7	1955.5	0:32:35
		Average (Seconds)	1985.065	
		Time	0:33	

Scenario 12 –Hidden Canyon Industrial Park with West 4th Street Only

Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	926.9	2836.2	1909.3	0:31:49
2	929	2740.4	1811.4	0:30:11
3	927.3	2735.2	1807.9	0:30:08
4	928.4	2802.8	1874.4	0:31:14
5	927.1	2850.7	1923.6	0:32:04
6	928.3	2932.1	2003.8	0:33:24
7	930.6	2872.2	1941.6	0:32:22
8	931.4	2671.6	1740.2	0:29:00
9	928.8	2669.6	1740.8	0:29:01
10	929.1	2706.4	1777.3	0:29:37
11	929.6	2724.1	1794.5	0:29:55
12	930.3	2785.6	1855.3	0:30:55
13	928.9	2870.7	1941.8	0:32:22
14	928.8	2810.1	1881.3	0:31:21
15	928.9	2699.3	1770.4	0:29:30
16	928.5	2944.1	2015.6	0:33:36
17	931.2	2796.5	1865.3	0:31:05
18	926.9	2863.4	1936.5	0:32:16
19	928.8	2877.4	1948.6	0:32:29
20	928	2850.4	1922.4	0:32:02
		Average (Seconds)	1873.1	
		Time	0:31	

Scenario 13 – Full Project with Hidden Canyon Industrial Park with all Evacuation Routes Available

		Overall			Existing & Planned Land Uses			
Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.5	7928.5	7005	1:56:45	923.5	3709.9	2786.4	0:46:26
2	922.6	8240.3	7317.7	2:01:58	922.6	3211.5	2288.9	0:38:09
3	924.6	8207	7282.4	2:01:22	924.6	3633	2708.4	0:45:08
4	923.4	7980.6	7057.2	1:57:37	923.4	3294.5	2371.1	0:39:31
5	922.6	8126.6	7204	2:00:04	922.6	4027.6	3105	0:51:45
6	924.7	8444.5	7519.8	2:05:20	924.7	3602.9	2678.2	0:44:38
7	923.3	8026	7102.7	1:58:23	923.3	4523.4	3600.1	1:00:00
8	923.7	8411	7487.3	2:04:47	923.7	4296.9	3373.2	0:56:13
9	922.5	8131.8	7209.3	2:00:09	922.5	3960.8	3038.3	0:50:38
10	923.8	8303.9	7380.1	2:03:00	923.8	3122	2198.2	0:36:38
11	925.2	8438	7512.8	2:05:13	925.2	3346.4	2421.2	0:40:21
12	925.9	8504	7578.1	2:06:18	925.9	3339.2	2413.3	0:40:13
13	924.1	8355.7	7431.6	2:03:52	924.1	2667.2	1743.1	0:29:03
14	924.3	8293.8	7369.5	2:02:49	924.3	3665.5	2741.2	0:45:41
15	924.6	7930.4	7005.8	1:56:46	924.6	3342.4	2417.8	0:40:18
16	925.2	8291.8	7366.6	2:02:47	925.2	3571.5	2646.3	0:44:06
17	924.1	8053.9	7129.8	1:58:50	924.1	3971.2	3047.1	0:50:47
18	923.7	8424	7500.3	2:05:00	923.7	3132.8	2209.1	0:36:49
19	924.3	8180	7255.7	2:00:56	924.3	3022	2097.7	0:34:58
20	923.9	8400.6	7476.7	2:04:37	923.9	3616.7	2692.8	0:44:53
		Average (Seconds)	7309.62			Average (Seconds)	2628.87	
		Time	2:01			Time	0:43	

Scenario 14 – Full Project with Hidden Canyon Industrial Park with SR-60 Only

		Overall			Existing & Planned Land Uses			
Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	926	13495.4	12569.4	3:29:29	926	2702.9	1776.9	0:29:37
2	922.5	14290.2	13367.7	3:42:48	922.5	8465	7542.5	2:05:42
3	924.2	13836.6	12912.4	3:35:12	924.2	2761.7	1837.5	0:30:37
4	923.4	13869.9	12946.5	3:35:46	923.4	4692.8	3769.4	1:02:49
5	925.8	13883.1	12957.3	3:35:57	925.8	6365.5	5439.7	1:30:40
6	923.1	13856	12932.9	3:35:33	923.1	2705.8	1782.7	0:29:43
7	924.2	13803.6	12879.4	3:34:39	924.2	6308.6	5384.4	1:29:44
8	925.2	13809	12883.8	3:34:44	925.2	6537.8	5612.6	1:33:33
9	924.2	13884	12959.8	3:36:00	924.2	5032.1	4107.9	1:08:28
10	926.3	13812.9	12886.6	3:34:47	926.3	3070.2	2143.9	0:35:44
11	922.6	13639.5	12716.9	3:31:57	922.6	2778.1	1855.5	0:30:56
12	925.5	13746	12820.5	3:33:40	925.5	2918.7	1993.2	0:33:13
13	922.5	13743.6	12821.1	3:33:41	922.5	3053.9	2131.4	0:35:31
14	924.2	13879.1	12954.9	3:35:55	924.2	6515.1	5590.9	1:33:11
15	923.3	13961.5	13038.2	3:37:18	923.3	3681.5	2758.2	0:45:58
16	923.4	13793.8	12870.4	3:34:30	923.4	2778.3	1854.9	0:30:55
17	922.4	13805.7	12883.3	3:34:43	922.4	3299.4	2377	0:39:37
18	922.5	14212.3	13289.8	3:41:30	922.5	8728.8	7806.3	2:10:06
19	925	14164.5	13239.5	3:40:40	925	4657	3732	1:02:12
20	926	14239.2	13313.2	3:41:53	926	3194.1	2268.1	0:37:48
		Average (Seconds)	12962.18			Average (Seconds)	3588.25	
		Time	3:36			Time	0:59	

Scenario 15 – Full Project with Hidden Canyon Industrial Park with West 4th Street Only

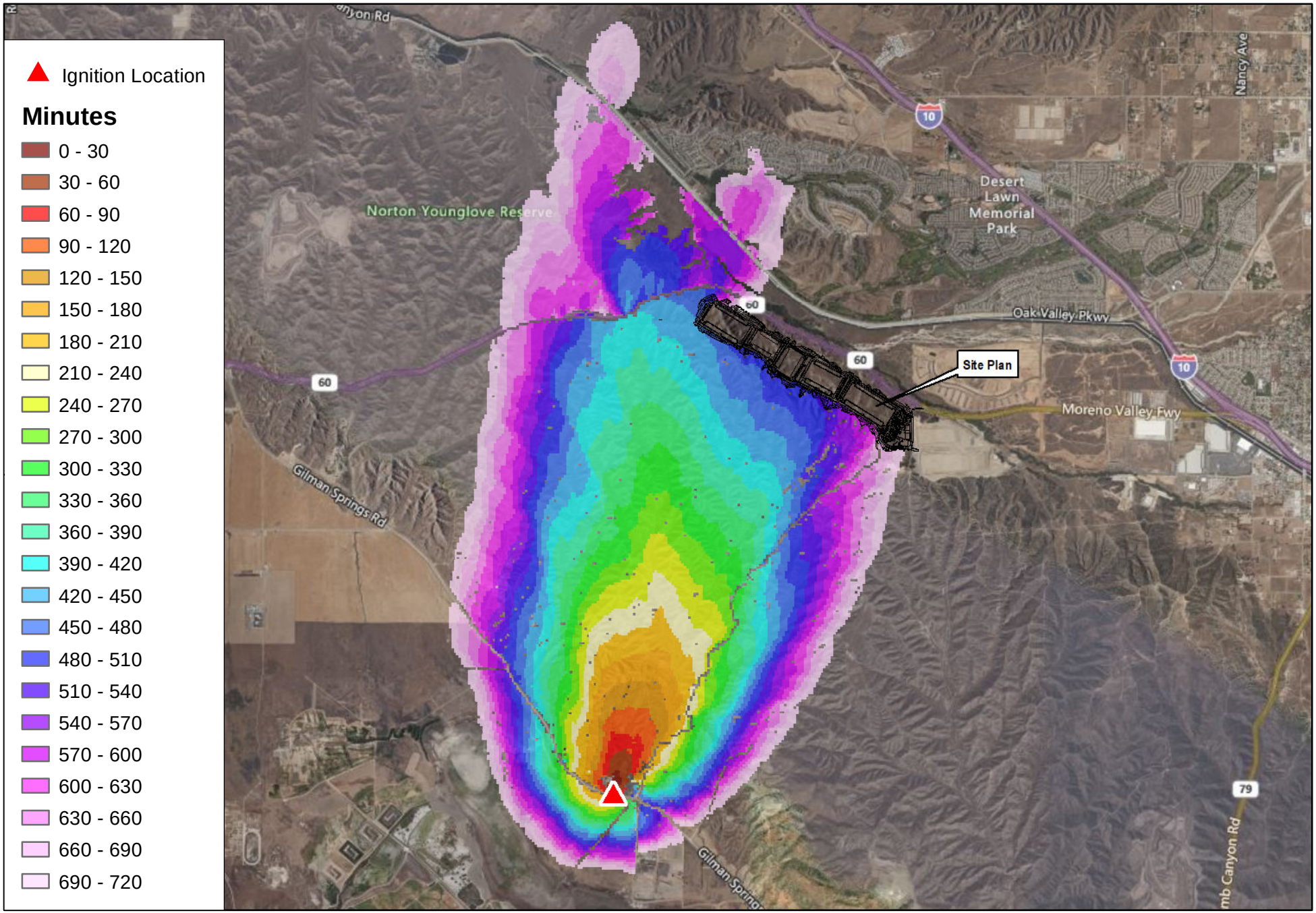
		Overall			Existing & Planned Land Uses			
Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	926.9	13656.9	12730	3:32:10	926.9	3549.2	2622.3	0:43:42
2	929	13378.5	12449.5	3:27:30	929	3081.3	2152.3	0:35:52
3	927.3	13501.9	12574.6	3:29:35	927.3	3866.9	2939.6	0:49:00
4	928.4	13625.7	12697.3	3:31:37	928.4	4418.9	3490.5	0:58:10
5	927.1	13546.6	12619.5	3:30:19	927.1	3273.5	2346.4	0:39:06
6	928.3	13600.5	12672.2	3:31:12	928.3	3111.9	2183.6	0:36:24
7	930.6	13400.8	12470.2	3:27:50	930.6	3658	2727.4	0:45:27
8	931.4	13328.4	12397	3:26:37	931.4	3018.9	2087.5	0:34:47
9	928.8	13761.5	12832.7	3:33:53	928.8	3086.8	2158	0:35:58
10	929.1	13829	12899.9	3:35:00	929.1	3678.8	2749.7	0:45:50
11	929.6	13636.6	12707	3:31:47	929.6	3327.7	2398.1	0:39:58
12	930.3	13925.8	12995.5	3:36:36	930.3	3287.6	2357.3	0:39:17
13	928.9	13859	12930.1	3:35:30	928.9	3905.8	2976.9	0:49:37
14	928.8	13690.8	12762	3:32:42	928.8	4070.3	3141.5	0:52:22
15	928.9	13372.8	12443.9	3:27:24	928.9	3385.1	2456.2	0:40:56
16	928.5	13988	13059.5	3:37:39	928.5	3394	2465.5	0:41:06
17	931.2	13747.4	12816.2	3:33:36	931.2	4292.8	3361.6	0:56:02
18	926.9	13733.8	12806.9	3:33:27	926.9	2993.5	2066.6	0:34:27
19	928.8	13603.6	12674.8	3:31:15	928.8	3578.5	2649.7	0:44:10
20	928	13964.9	13036.9	3:37:17	928	4034.1	3106.1	0:51:46
		Average (Seconds)	12728.79			Average (Seconds)	2621.84	
		Time	3:32			Time	0:43	

Scenario 16 - Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available

		Overall		
Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	975.1	3123.8	2148.7	0:35:49
2	971.1	3191.4	2220.3	0:37:00
3	975.7	3067.6	2091.9	0:34:52
4	970.3	3148.5	2178.2	0:36:18
5	981.8	3218.4	2236.6	0:37:17
6	969.1	2845.4	1876.3	0:31:16
7	984.8	2941.6	1956.8	0:32:37
8	984.8	3038.2	2053.4	0:34:13
9	982	3017.1	2035.1	0:33:55
10	975.8	2981	2005.2	0:33:25
11	977.6	3199.1	2221.5	0:37:01
12	977.2	3167.2	2190	0:36:30
13	978.4	3053.5	2075.1	0:34:35
14	979.7	3190.5	2210.8	0:36:51
15	974.1	3136	2161.9	0:36:02
16	972.2	3080.4	2108.2	0:35:08
17	973.8	3225.2	2251.4	0:37:31
18	982	3179.7	2197.7	0:36:38
19	969.1	3212	2242.9	0:37:23
20	983.4	3213.3	2229.9	0:37:10
		Average (Seconds)	2134.595	
		Time	0:35	

Scenario 17 – Full Project with Hidden Canyon Industrial Park and Olive Wood with all Evacuation Routes Available

		Overall			Existing & Planned Land Uses			
Run	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time	Start Time (Seconds)	End Time (Seconds)	Delta (Seconds)	Time
1	923.5	5120.4	4196.9	1:09:57	923.5	3933.8	3010.3	0:50:10
2	923.5	8496	7572.5	2:06:12	923.5	4452.9	3529.4	0:58:49
3	922.6	8667.1	7744.5	2:09:04	922.6	4938.8	4016.2	1:06:56
4	924.6	8285.5	7360.9	2:02:41	924.6	4224.4	3299.8	0:55:00
5	923.4	8417.4	7494	2:04:54	923.4	4057.3	3133.9	0:52:14
6	922.6	8283.6	7361	2:02:41	922.6	4168.9	3246.3	0:54:06
7	924.7	8487.4	7562.7	2:06:03	924.7	4093.5	3168.8	0:52:49
8	923.3	7865.8	6942.5	1:55:42	923.3	3605.1	2681.8	0:44:42
9	923.7	8472.1	7548.4	2:05:48	923.7	4493.5	3569.8	0:59:30
10	922.5	8524.2	7601.7	2:06:42	922.5	3799.4	2876.9	0:47:57
11	923.8	8523.5	7599.7	2:06:40	923.8	4051.6	3127.8	0:52:08
12	925.2	8685	7759.8	2:09:20	925.2	5318	4392.8	1:13:13
13	925.9	8621.5	7695.6	2:08:16	925.9	3669.3	2743.4	0:45:43
14	924.1	8693.3	7769.2	2:09:29	924.1	3933.8	3009.7	0:50:10
15	924.3	8848.1	7923.8	2:12:04	924.3	4007.3	3083	0:51:23
16	924.6	8492.3	7567.7	2:06:08	924.6	4579.8	3655.2	1:00:55
17	925.2	8674.6	7749.4	2:09:09	925.2	4596.2	3671	1:01:11
18	924.1	8986.6	8062.5	2:14:23	924.1	4280.8	3356.7	0:55:57
19	923.7	8841.3	7917.6	2:11:58	923.7	4102.8	3179.1	0:52:59
20	924.3	8676.6	7752.3	2:09:12	924.3	3944	3019.7	0:50:20
		Average (Seconds)	7459.135			Average (Seconds)	3091.89	
		Time	2:04			Time	0:51	



Path: Z:\Projects\j12-40400\MAPDOC\DOCUMENT\Fire Progression Series\s1-Attachment A_Fire Progression Modeling Run1 Overview.mxd

SOURCE: AERIAL-BING MAPPING SERVICE

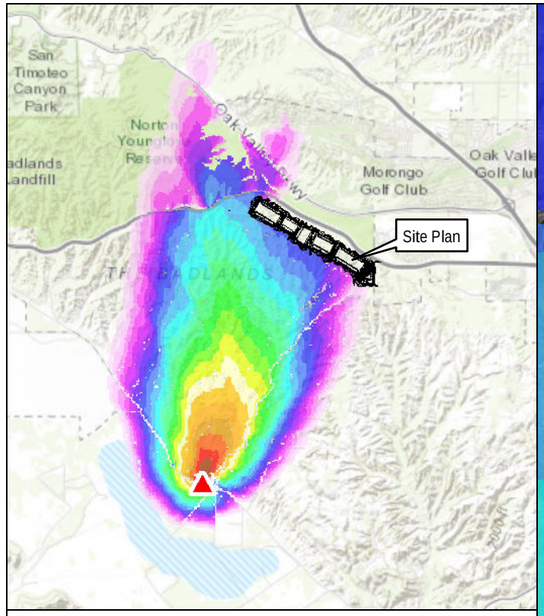
DUDEK

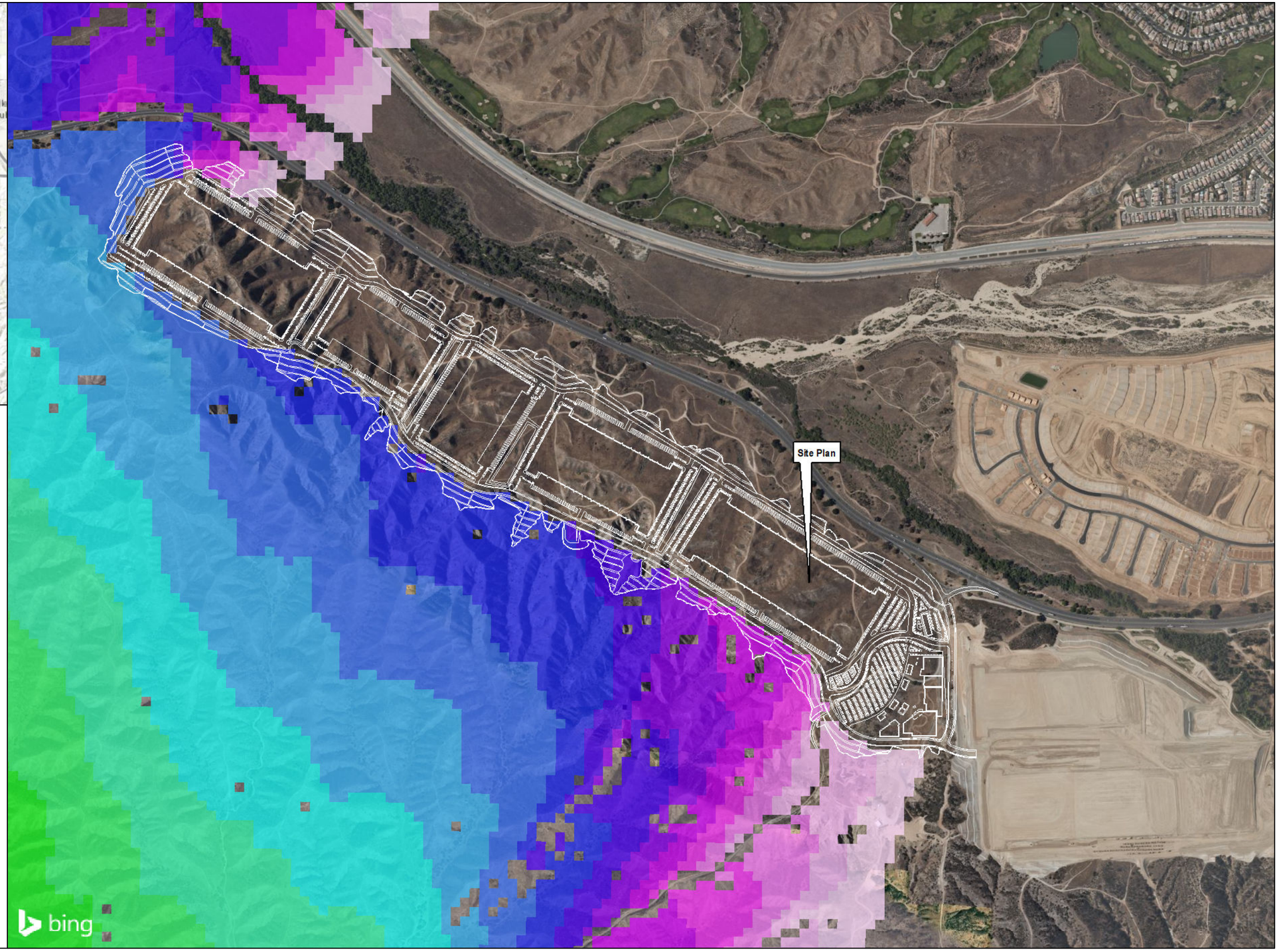
0 1 Miles

APPENDIX D-1

Fire Progression Modeling - Run 1 Overview

Fire Protection Plan for the Beaumont Pointe Specific Plan





Ignition Location

Minutes

0 - 30	330 - 360
30 - 60	360 - 390
60 - 90	390 - 420
90 - 120	420 - 450
120 - 150	450 - 480
150 - 180	480 - 510
180 - 210	510 - 540
210 - 240	540 - 570
240 - 270	570 - 600
270 - 300	600 - 630
300 - 330	630 - 660
	660 - 690
	690 - 720

Path: Z:\Projects\(12-040400\MAPDOC\DOCUMENT\Fire Progression Series\02-Attachment A_Fire Progression Modeling Run1 Project Site.mxd

SOURCE: AERIAL-BING MAPPING SERVICE

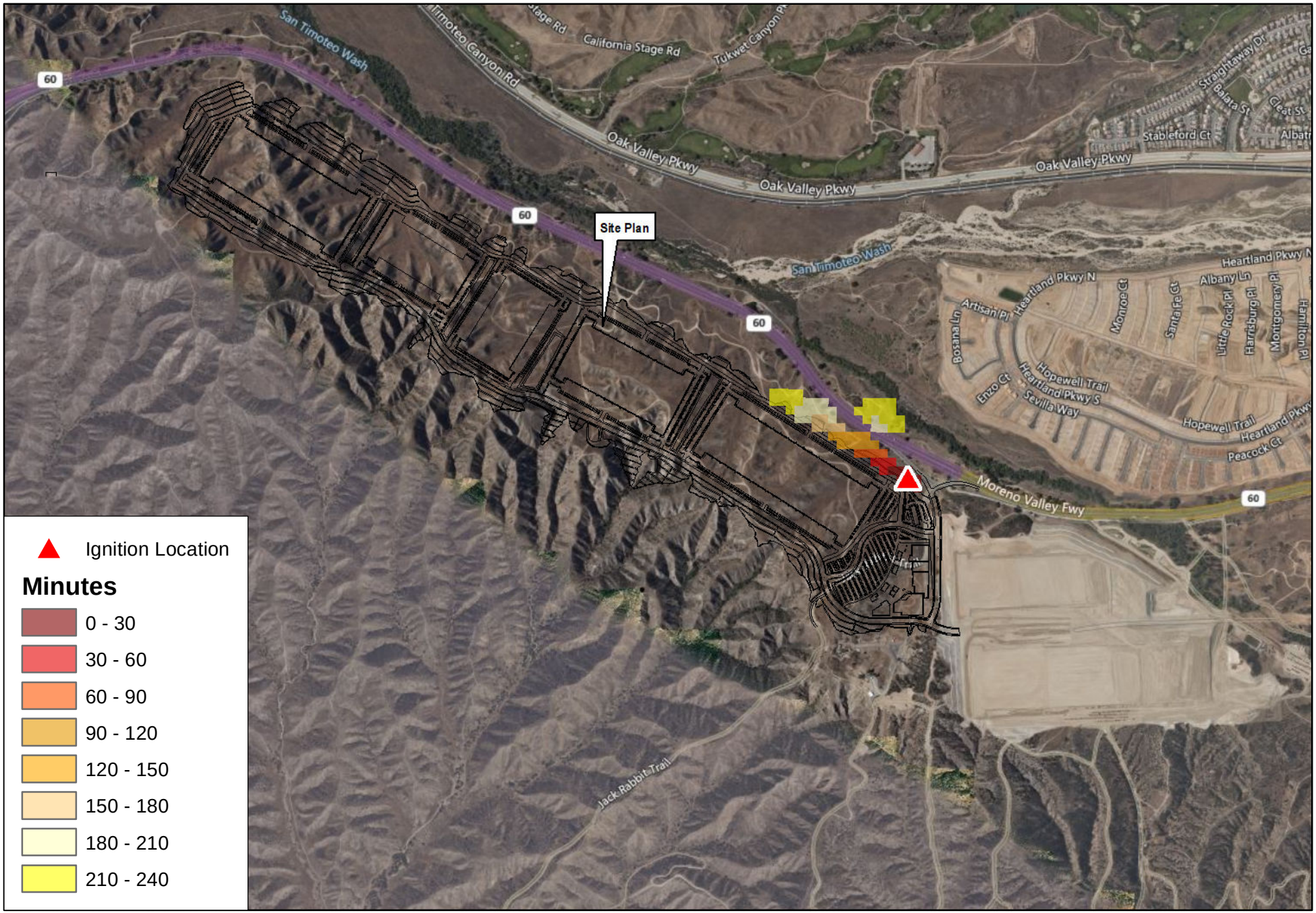
DUDEK

0 1 Miles

ATTACHMENT A

Fire Progression Modeling - Run 1 Project Site

Fire Protection Plan for the Beaumont Pointe Specific Plan



Path: Z:\Projects\j12-40400\MAPDOC\DOCUMENT\Fire Progression Series\S3-Attachment A_Fire Progression Modeling Run2 Overview.mxd

SOURCE: AERIAL-BING MAPPING SERVICE

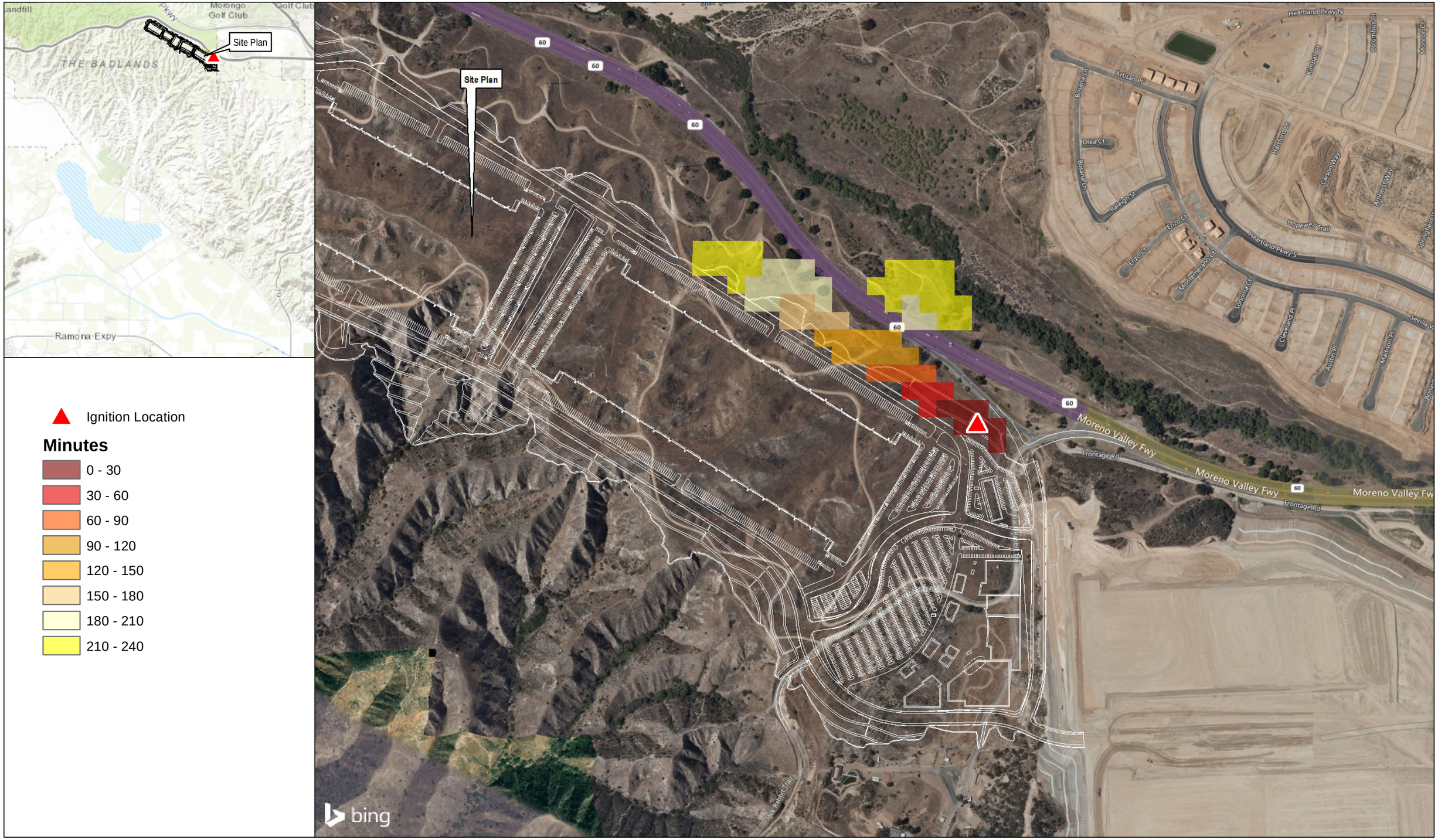
DUDEK

0 0.25 Miles

APPENDIX D-3

Fire Progression Modeling - Run 2 Overview

Fire Protection Plan for the Beaumont Pointe Specific Plan



Ignition Location

Minutes

- 0 - 30
- 30 - 60
- 60 - 90
- 90 - 120
- 120 - 150
- 150 - 180
- 180 - 210
- 210 - 240

Path: Z:\Projects\12\40400\MAP\DOCS\DOCUMENT\Fire Progression Series\4-Attachment A_Fire Progression Modeling Run2 ProjectSite.mxd

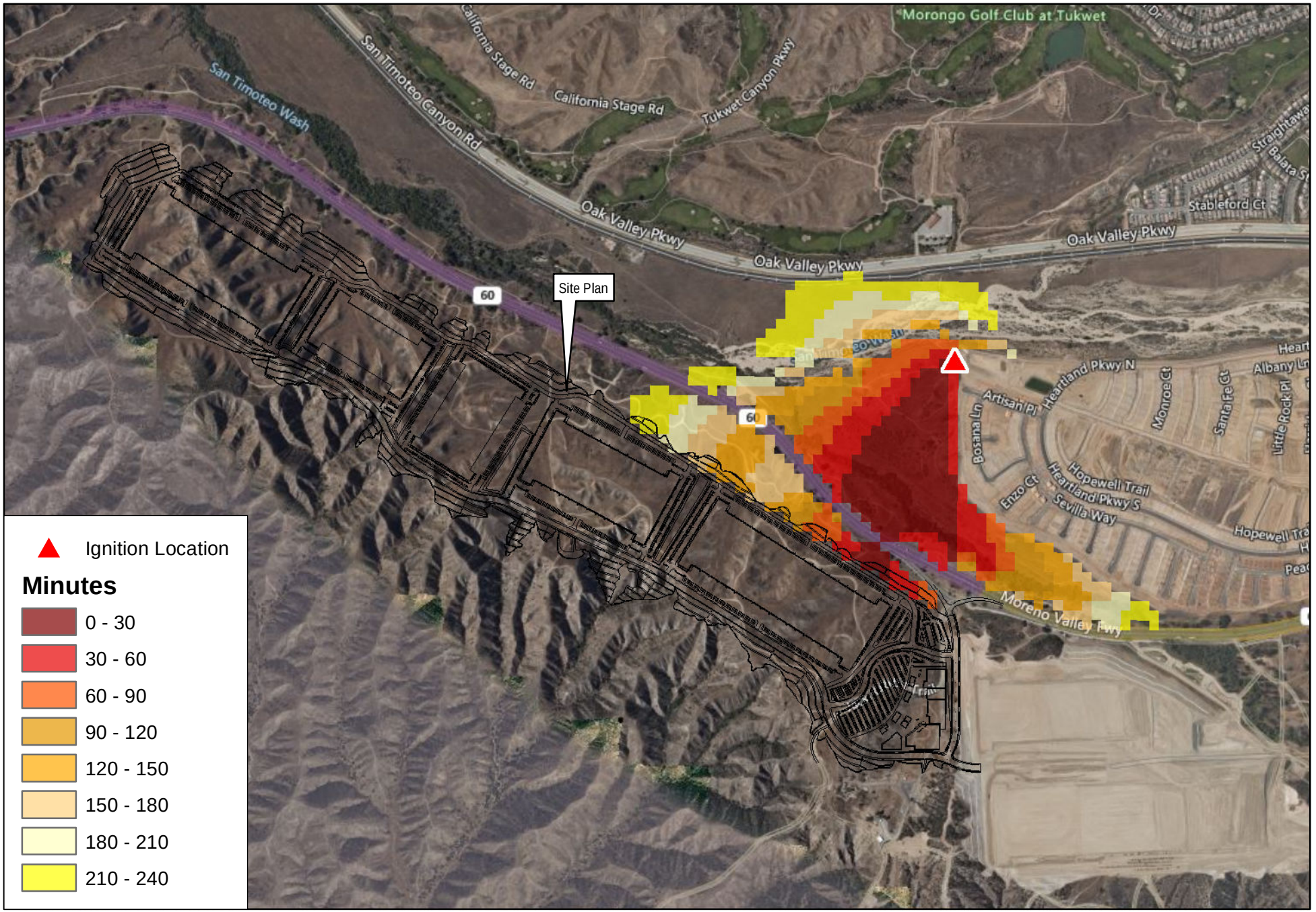
SOURCE: AERIAL-BING MAPPING SERVICE

DUDEK 0 500 Feet

APPENDIX D-4

Fire Progression Modeling - Run 2 Project Site

Fire Protection Plan for the Beaumont Pointe Specific Plan



Path: Z:\Projects\j12-40400\MAPDOC\DOCUMENT\Fire Progression Series\5-Attachment A_Fire Progression Modeling Run3 Overview.mxd

SOURCE: AERIAL-BING MAPPING SERVICE

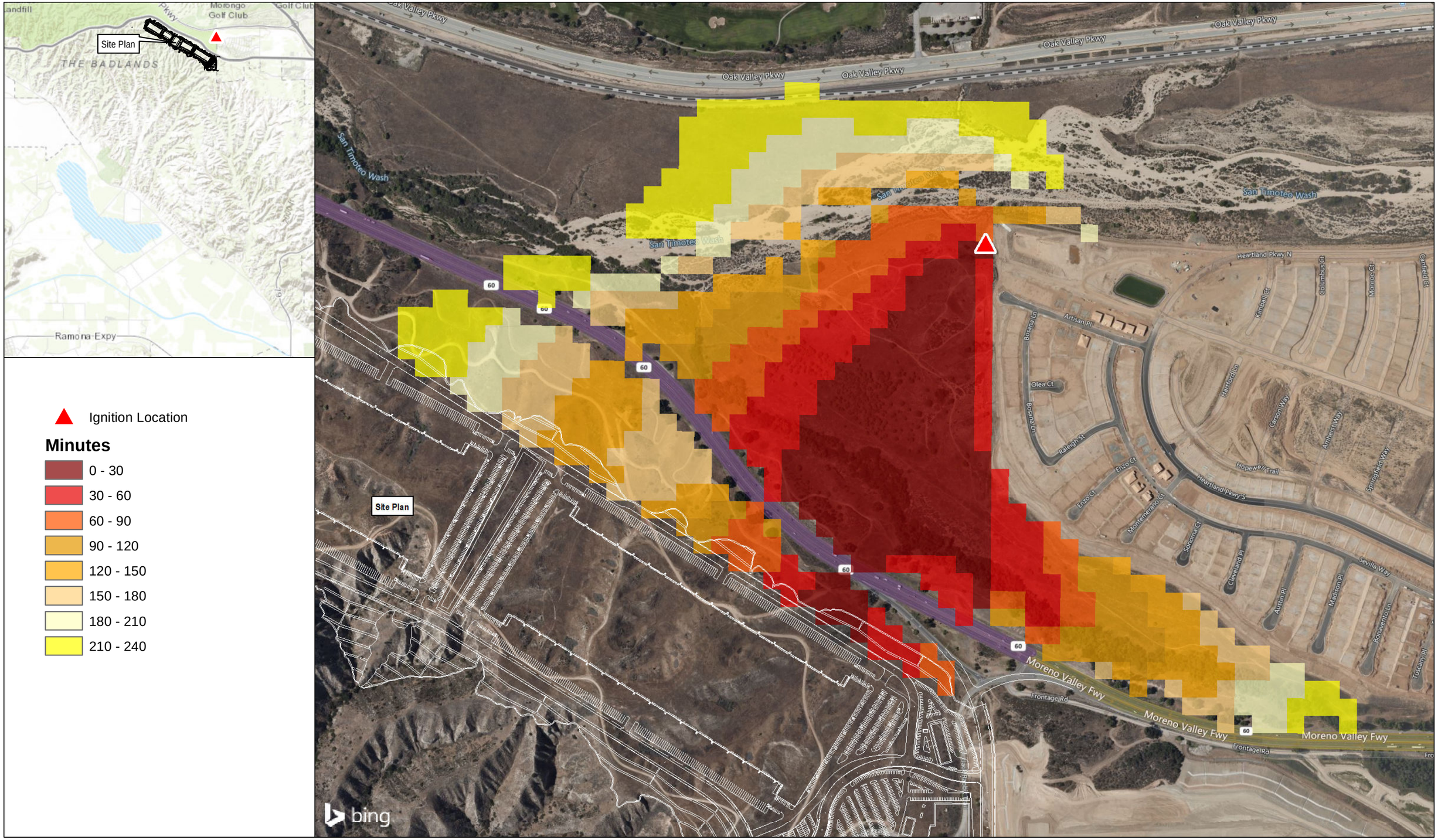
DUDEK

0 0.25 Miles

APPENDIX D-5

Fire Progression Modeling - Run 3

Fire Protection Plan for the Beaumont Pointe Specific Plan

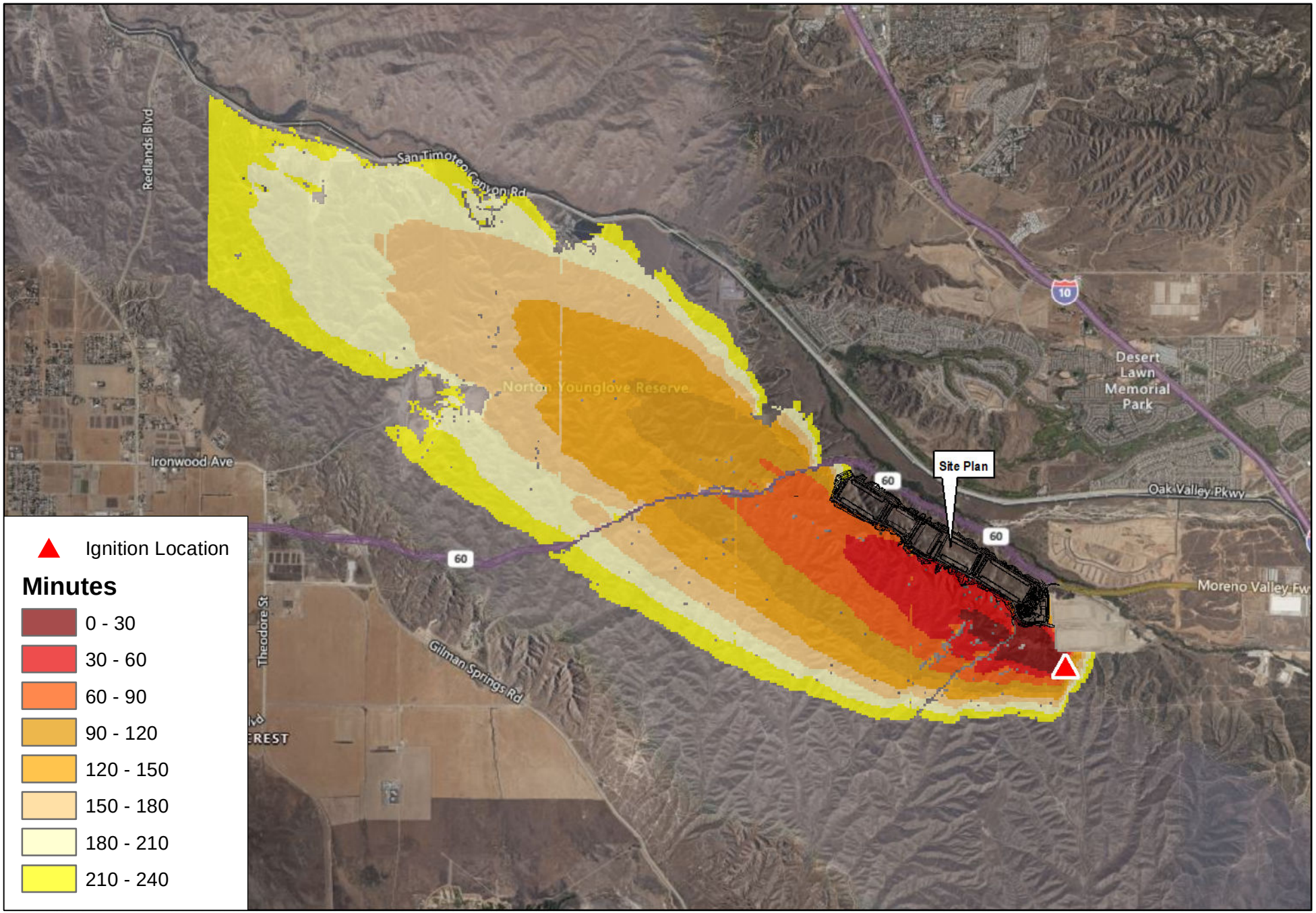


SOURCE: AERIAL-BING MAPPING SERVICE

DUDEK

0 1,000 Feet

Path: Z:\Projects\124400\MAP\DOC\DOCUMENT\Fire Progression Series\6-Attachment A_Fire Progression Modeling Run3 Project Site.mxd



Path: Z:\Projects\j12-40400\MAPDOC\DOCUMENT\Fire Progression Series\7-Attachment A_Fire Progression Modeling Run4 Overview.mxd

SOURCE: AERIAL-BING MAPPING SERVICE

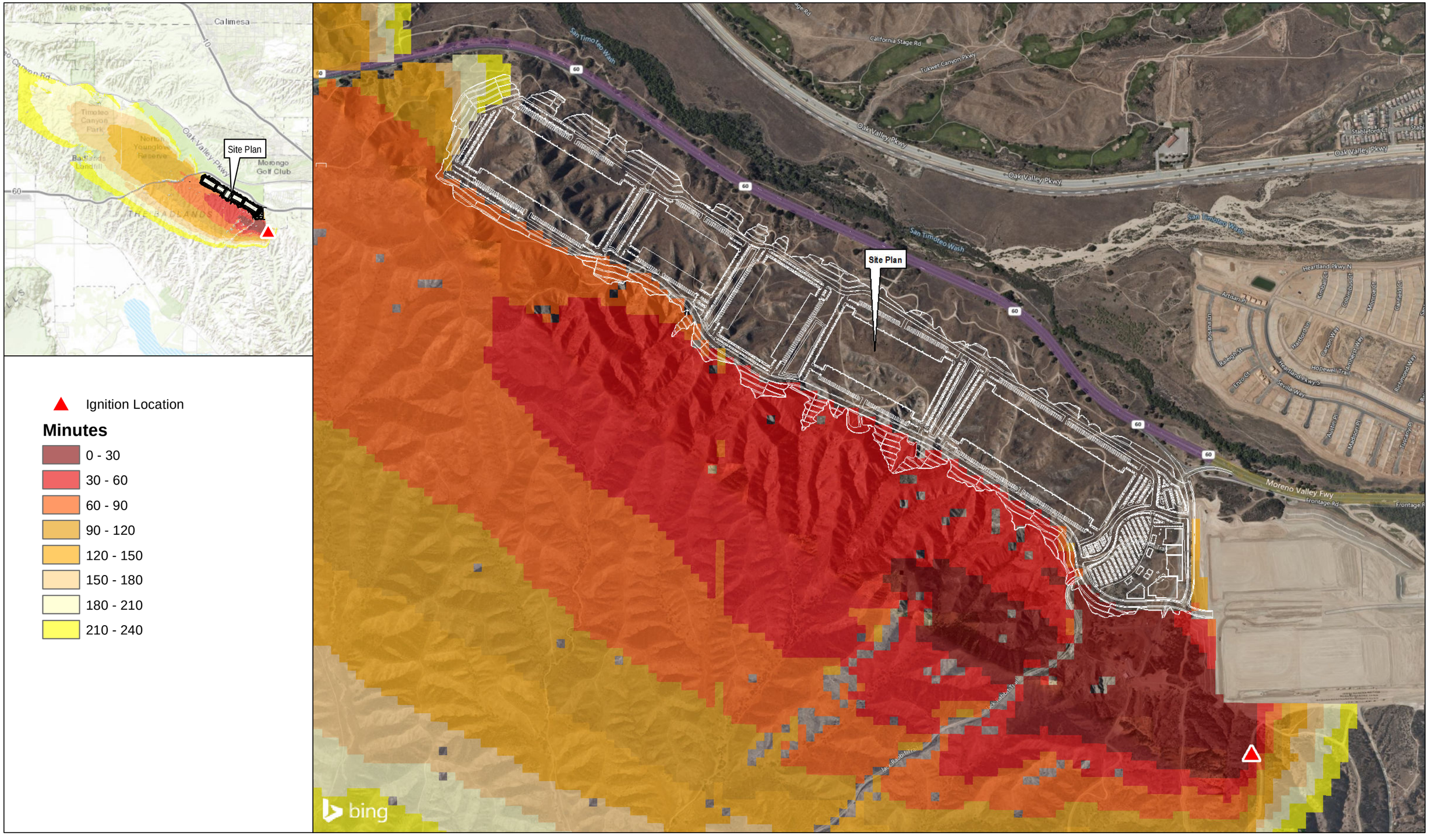
DUDEK

0 1 Miles

APPENDIX D-7

Fire Progression Modeling - Run 4 Overview

Fire Protection Plan for the Beaumont Pointe Specific Plan



SOURCE: AERIAL-BING MAPPING SERVICE

DUDEK 0 1,000 Feet

APPENDIX D-8

Fire Progression Modeling - Run 4 Project Site

Fire Protection Plan for the Beaumont Pointe Specific Plan

Path: Z:\Projects\J2 40400\MAPDOC\DOCUMENT\Fire Progression Series\8-Attachment A_Fire Progression Modeling Run4 Project Site.mxd