FEHR PEERS

June 11, 2024

Village of Marble Valley Specific Plan

Project Element	Description
Project Area	• 2,341 Acres
Land Use	• 3,236 Dwelling Units
	• 475,000 Square Feet of Commercial Land Use
	• 1,284 Acres of Open Space
Regional Connectivity	• US 50/Bass Lake Road Interchange • US 50/Cambridge Road Interchange
Evacuation Routes	• 4 Available with Village of Marble Valley Specific Plan • 7 Available with both Village of Marble Valley and Lime Rock Valley Specific Plans

General Plan Improvement Concurrency

The Village of Marble Valley Specific Plan (Project) will comply with General Plan Policy. Specifically, each tentative map will be required to demonstrate consistency with Policy TC-Xf (included below) to ensure the concurrency of transportation improvement with development.

Policy TC-Xf	At the time of approval of a tentative map for a single family residential subdivision of five or more parcels that worsens (defined as a project that triggers Policy TC-Xe [A] or [B] or [C]) traffic on the County road system, the County shall do one of the following: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in this Transportation and Circulation Element based on existing traffic plus traffic generated from the development plus forecasted traffic growth at 10-years from project submittal; or (2) ensure the commencement of construction of the necessary road improvements are included in the County's 10-year CIP. For all other discretionary projects that worsen (defined as a project that triggers Policy TC-Xe [A] or [B] or [C]) traffic on the County road system, the County shall do one of the following: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in this Transportation and Circulation Element; or (2) ensure the construction of the necessary road improvements are included in the County's 20-year CIP.

As outlined, consistency with Policy TC-Xf, may be satisfied by direct construction of roadway improvements or payment of the County's Traffic Impact Fee, which funds the County's Capital Improvement Program (CIP). The 2023 adopted CIP is outlined below.

El Dorado County Capital Improvement Program (Adopted 2023)

Executive Summary
Capital Improvement Program Overview

A Capital Improvement Program (CIP) is a planning document that identifies capital improvement projects (e.g., roads and bridges) a local government or public agency intends to build over a certain time horizon (usually between five and twenty years). CIPs typically provide key information for each project, including delivery schedule, cost, and revenue sources. The County's CIP provides a means for the Board to determine capital improvement project and funding priorities over a 20-Year horizon.

In order to maintain the integrity of the County's roadway network, the County is required to implement General Plan Policy TC-Xb and Implementation Measures TC-A and TC-B. These measures require the development of a 5- 10- and 20-Year CIP. These policies also require an update of the twenty-year growth forecast every five years.

The forecast is needed to update the CIP and Traffic Impact Fee (TIF), formerly the Traffic Impact Mitigation (TIM) Fee Program. Forecasting growth is an iterative and ongoing process – forecasts are reviewed and adjusted annually, as well as every five years. Routinely verifying and updating growth forecasts allows the County to account for new information and adjust its assumptions and plans accordingly. A TIF is a fee levied by a local government or public agency to ensure that new development projects pay for all or a portion of the costs of providing public infrastructure or services to the new development. Since 1984, the County has adopted and updated various TIM Fee programs to ensure that new development on the western slope pays the costs of constructing and improving county and state roads necessary to serve new development. The TIF is paid at the time of issuance of a building permit (e.g., for single family home or non-residential buildings) or whenever appropriate if no building permit is being issued. TIF's are calculated pursuant to Government Code 66000 et. seq. and the County's General Plan policy. Generally, fees are based on the type of land use, quantity, location, impact on roads, and level of service (LOS). TIF's are assessed by one of three designated zone in which the development occurs. The TIF Program will receive a minor update in 2023 to reflect future changes.

Table 1 summarizes West Slope Roadway projects included in the Adopted 2023 CIP that are near the proposed Project that will address existing operations and accommodate planned growth.

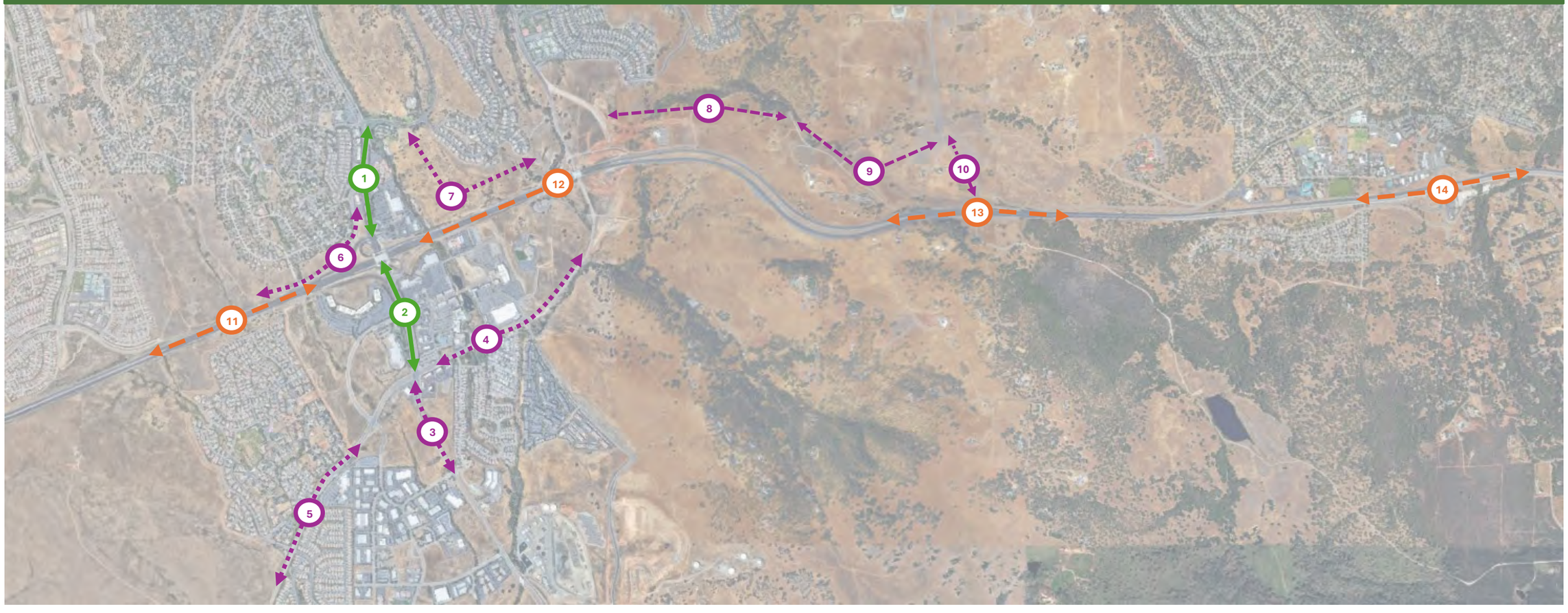
The roadway projects are grouped into the following categories:

- **Projects Under/Nearing Construction** – Shown in **Green**, these projects are under construction or nearing construction and will address key operational issues that drivers experience today. These projects are located on County roadways.
- **Project on County Roadways** – Shown in **purple**, these projects will add capacity to the County's roadways and in most cases add parallel capacity to US 50.
- **US 50 Capacity Projects** – Shown in **Orange**, these projects will add capacity to US 50.

The location and general limits of the roadway improvement projects are shown in **Figure 1**.

Table 1: 2023 CIP West Slope Roadway Projects Near the Village of Marble Valley Specific Plan				
ID	**Location**	**Improvement**	**CIP Project Number**	**Project Status**
1	El Dorado Hills Blvd / Saratoga Wy	• Extend NB Left-Turn Pocket • Add SB Right-Turn Pocket	36105076	GREEN
2	US 50 / El Dorado Hills Blvd Interchange Improvements Phase 2B	• Widen Latrobe Rd / El Dorado Hills Blvd	36104001	
3	Latrobe Rd – Golden Foothill Pkwy (N) to White Rock Rd	• Widen to 6 Lanes	36105069	PURPLE
4	White Rock Rd Widening – Post St to South of Silva Valley Pkwy	• Widen to 4 Lanes	36105042	
5	White Rock Rd Widening – Windfield Wy to Sacramento Co Line	• Widen to 4 Lanes	36105041	
6	Saratoga Wy Widening – Phase 2	• Widen to 4 Lanes	36105035	
7	Country Club Dr – East of El Dorado Hills Blvd to Silva Valley	• Construct New 2-Lane Roadway	36105007	
8	Country Club Dr – Silva Valley Pkwy to Tong Rd	• Construct New 2-Lane Roadway	36105008	
9	Country Club Dr – Tong Rd to Bass Lake Rd	• Construct New 2-Lane Roadway	36105009	
10	Bass Lake Rd Widening (US 50 to Country Club Dr Realigned)	• Widen to 4 Lanes	36105054	
11	US 50 Auxiliary Lane WB – El Dorado Hills Blvd to Sacramento Co Line	• Construct WB Auxiliary Lane	36104021	ORANGE
12	US 50 / Silva Valley Pkwy Interchange (Phase 2) – On Ramps and Auxiliary Lane on US 50	• Construct EB Slip On-Ramp • Construct WB Loop On-Ramp • Construct WB US 50 Auxiliary Lane	36104004	
13	US 50/Bass Lake Rd Interchange Improvements	• Ramp Widening • Road Widening • Traffic Signal Installation/Modification	36104005	
14	US 50/Cambridge Rd Interchange Improvements	• Ramp Widening/Intersection Capacity • New Westbound On-Ramp • Traffic Signal Installation/Modification at Eastbound Ramps	36104006	

Figure 1:
2023 CIP West Slope Roadway Projects Near the Village of Marble Valley Specific Plan



Evacuation Time Estimates

The evacuation time estimates and conclusions presented below are summarized based on the comprehensive analyses documented in the following reports:

- *Village of Marble Valley Specific Plan Fire Evacuation Assessment – Draft* (Fehr & Peers, September 28, 2023). The document can be found at Draft Environmental Impact Report Appendix N (Fire Evacuation Assessment).
- *Wildland Fire Evacuation Risk Report – Fire Behavior – The Village of Marble Valley Project* (Firesafe Planning Solutions, October 24, 2023). The document can be found at Draft Environmental Impact Report Appendix M (Wildfire Risk Analysis).

Purpose

The purpose of a wildfire evacuation assessment is to address CEQA guidance released by the Attorney General in response to recent California Environmental Quality Act (CEQA) court decisions and compliance with CalFire regulations related to wildfire evacuation and emergency access.

Chapter 3.7 (Hazards and Hazardous Materials) of the Draft Environmental Impact Report (DEIR) discusses wildfire and evacuation.

Study Fire Scenarios

Firesafe Planning Solutions conducted fire behavior modeling for 16 locations surrounding the study area and included different wind direction and speed assumptions, resulting in a total of 33 fire scenarios. Each scenario also includes analysis of existing development, existing development plus the Village of Marble Valley Specific Plan, existing development plus the Lime Rock Valley Specific Plan, and existing development plus the development of both specific plans, resulting in a total of 132 fire behavior modeling scenarios.

Fehr & Peers screened all the fire scenarios developed by Firesafe Planning Solutions to identify a worst case set of fire scenarios to use for the evacuation time estimates. The screening considered the availability of evacuation routes and affected areas under existing (i.e., no Project) conditions and existing conditions with the addition of the Project. Based on this screening, the fire scenarios developed from Locations 2, 4, 7, and 16 were selected for the evacuation time estimate assessment. These four scenarios were selected because they would produce the fewest routes available for evacuation for the shortest amount of time. The evacuation performance of the other fire scenarios would be similar to or better than these scenarios. Therefore, detailed analysis is not necessary, and their performance can be inferred using the results of the worst-case fire scenarios.

Results and Conclusions

Evacuation time is used as a metric to evaluate evacuation performance.

As outlined in the *Wildland Fire Evacuation Risk Report – Fire Behavior – The Village of Marble Valley Project*, the fire scenarios modeled are extreme and the results indicate the fire will be traveling at a rate faster than fire suppression activity will allow for control lines. The size, location and configuration of the Project site makes it unlikely that a fire will impact the entire evacuation area, but rather the fire will impact different portions over time. Therefore, evacuation time estimates for self-evacuation conditions were analyzed.

Self-evacuation refers to the evacuation of populations in the direct path of the fire where advanced notice is not available due to the fire's progression. These vulnerable populations are in the red areas (i.e., where the fire's progression is 60 minutes or less) shown in **Figures ES1 through ES4**. As analyzed, evacuation is assumed to begin within 15 minutes of the fire's recognition. However, self-evacuation may be a part of an Ordered Evacuation[1], representing an initial phase of the evacuation that occurs before the Sheriff issues an order to evacuate. Evacuation time is estimated from the evacuation trip origin to the closest safe location not in the direct path of the fire.

As shown, the addition of the Project changes the progression of the fire event. Consequently, the vulnerable population changes in the existing community compared to existing conditions due to the fuels removed by the Project, fuels management activities, and the creation of fire breaks conducted around the Project perimeter. However, the vulnerable evacuees remain the same with a slight decrease in the number of evacuation vehicle trips. Under Fire Scenario 2 with the Project, the time to safety for the vulnerable evacuees would decrease compared to existing conditions due primarily to the addition of evacuation routes added with the Project. Under Fire Scenarios 2 and 4 all the existing community areas would be outside the vulnerable areas with the addition of both the Project and Lime Rock Valley Specific Plan.

For all fire scenarios, it would take less than 20 minutes to move all the vulnerable evacuees (i.e., existing or Project evacuees) to a safe location. The maximum total time to safety would decrease for existing vulnerable evacuees with the Project due to the following factors:

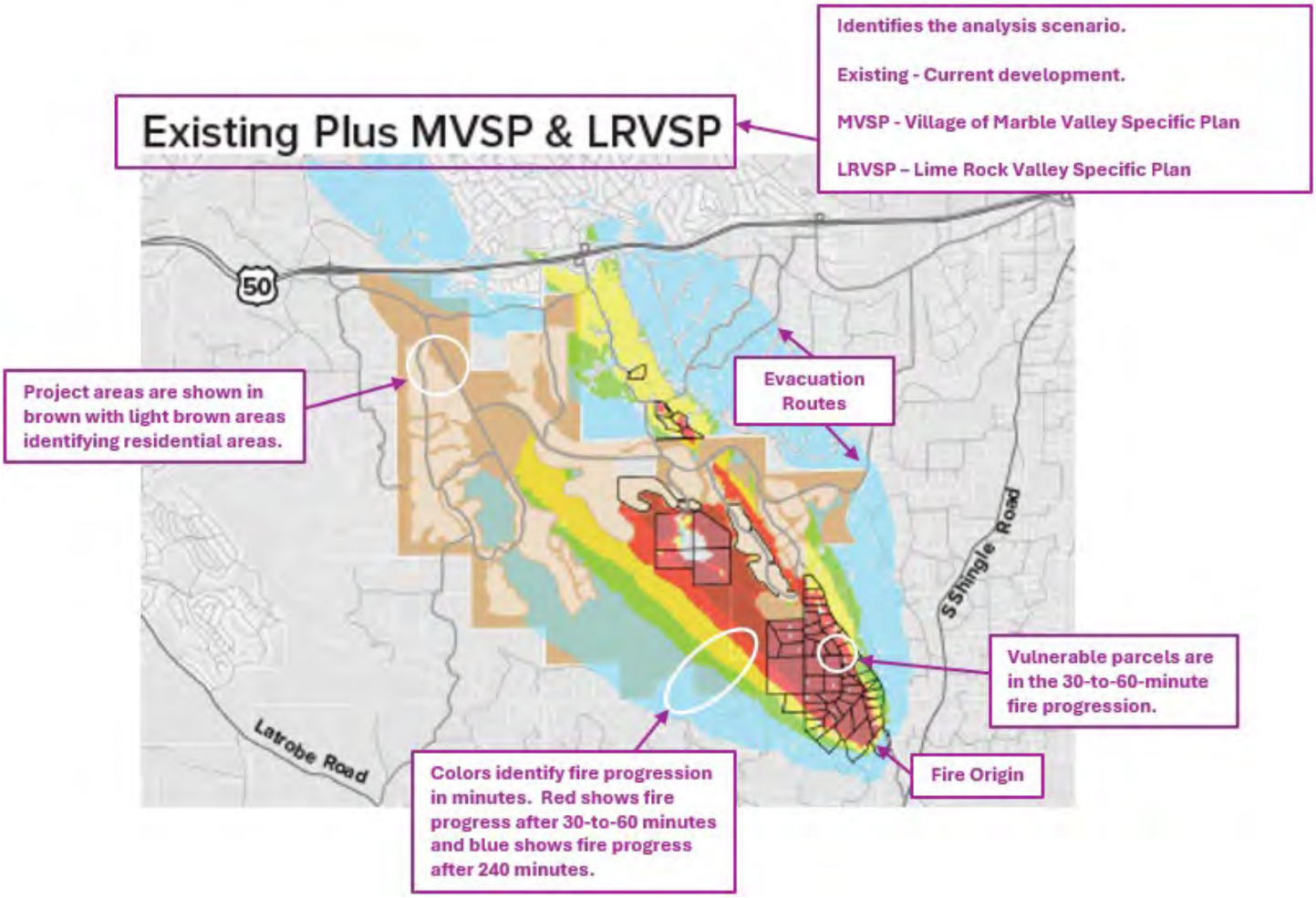
[1] Ordered Evacuation – Represents the evacuation of the entire population (residents, students, employees, and visitors) in the evacuation area for an event with ample notice where emergency services are participating in the evacuation. As analyzed, the evacuation window is 3 hours (180 minutes) beginning from the Sheriff ordering the evacuation. Evacuation time is estimated from the evacuation trip origin to the study area gateways, outside the study area. Refer to Draft Environmental Impact Report Appendix M for assessment of the Ordered Evacuation.

- Additional Evacuation Routes – The Project will provide additional evacuation routes for ingress and egress.
- Slowed Fire Progression – Removal of fuels and vegetation will slow fire progression.
- Fuel Management – Fuel management activities occurring with the Project will create additional safe areas for vulnerable evacuees to access.

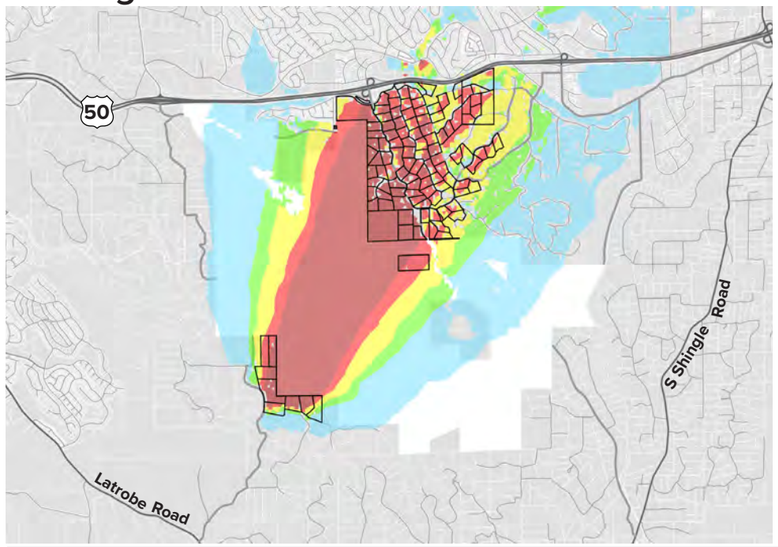
Impact Finding

With implementation of the risk reduction measures set forth in *Wildland Fire Evacuation Risk Report – Fire Behavior – The Village of Marble Valley Project*, the proposed development area 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.

Interpreting the Travel Time to Safety for Vulnerable Evacuees Graphics



Existing



Vulnerable Evacuees

108 Existing Population
45 Existing Households
20 Existing Employees
264 Project Population
100 Project Households
0 Project Employees

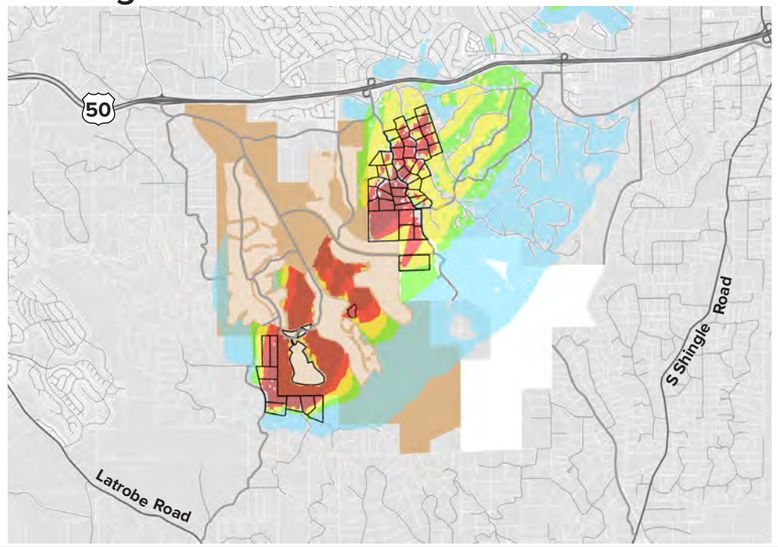
Evacuation Vehicle Trips

85 Existing Evacuees

Total Time to Safety (minutes)

18.1

Existing Plus MVSP



Vulnerable Evacuees

32 Existing Population
14 Existing Households
5 Existing Employees
264 Project Population
100 Project Households
0 Project Employees

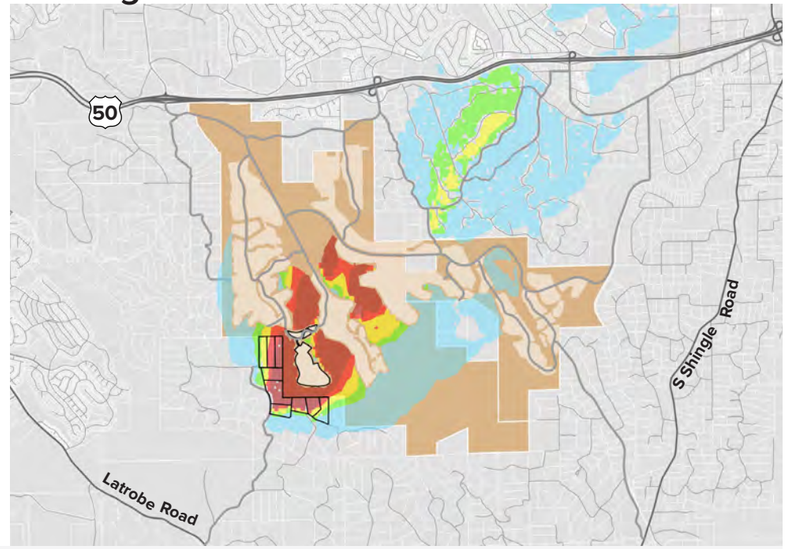
Evacuation Vehicle Trips

31 Existing Evacuees
189 Project Only Evacuees

Total Time to Safety (minutes)

17.6
19.1

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

0 Existing Population
0 Existing Households
0 Existing Employees
264 Project Population
100 Project Households
0 Project Employees

Evacuation Vehicle Trips

0 Existing Evacuees
189 Project Only Evacuees

Total Time to Safety (minutes)

N/A
19.1

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

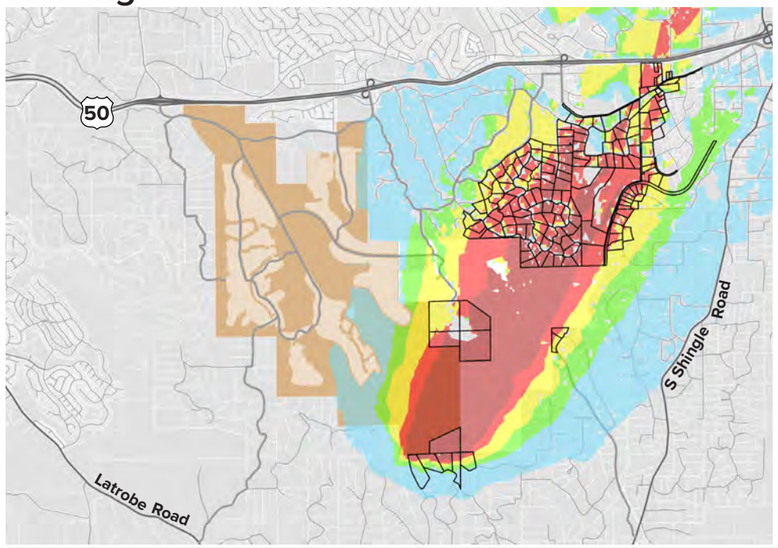
Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES1

Travel Time to Safety for Vulnerable Evacuees
Fire Scenario 2

Evacuation Begins at 11am

Existing



Vulnerable Evacuees

193 Existing Population
80 Existing Households
241 Existing Employees

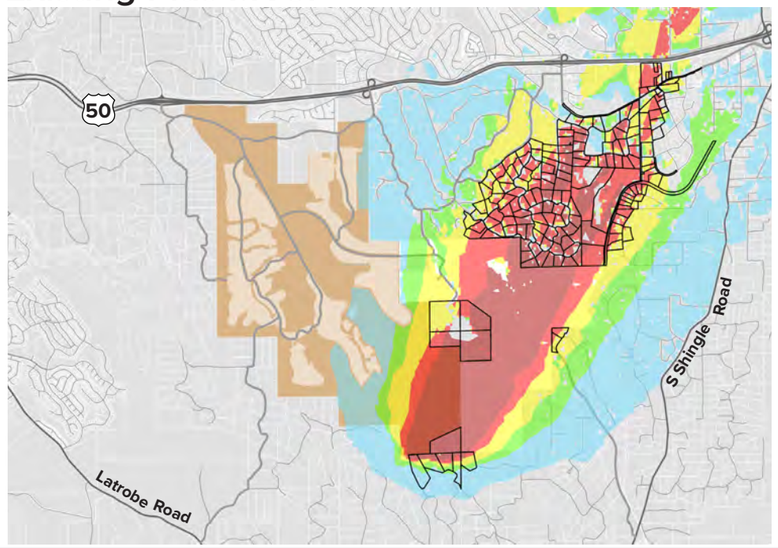
Evacuation Vehicle Trips

212 Existing Evacuees

Total Time to Safety (minutes)

19.8

Existing Plus MVSP



Vulnerable Evacuees

159 Existing Population
67 Existing Households
12 Existing Employees
527 Project Population
198 Project Households
0 Project Employees

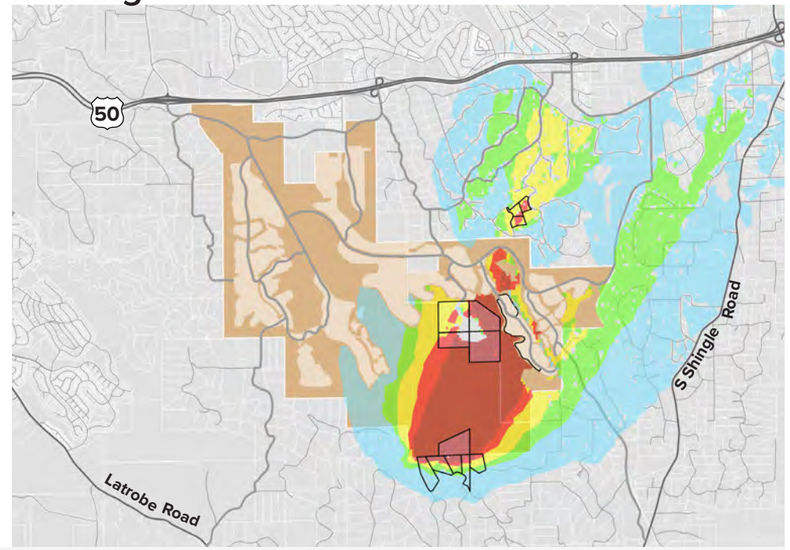
Evacuation Vehicle Trips

95 Existing Evacuees
342 Project Only Evacuees

Total Time to Safety (minutes)

18.2
19.3

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

0 Existing Population
0 Existing Households
0 Existing Employees
404 Project Population
160 Project Households
0 Project Employees

Evacuation Vehicle Trips

0 Existing Evacuees
303 Project Only Evacuees

Total Time to Safety (minutes)

N/A
18.2

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

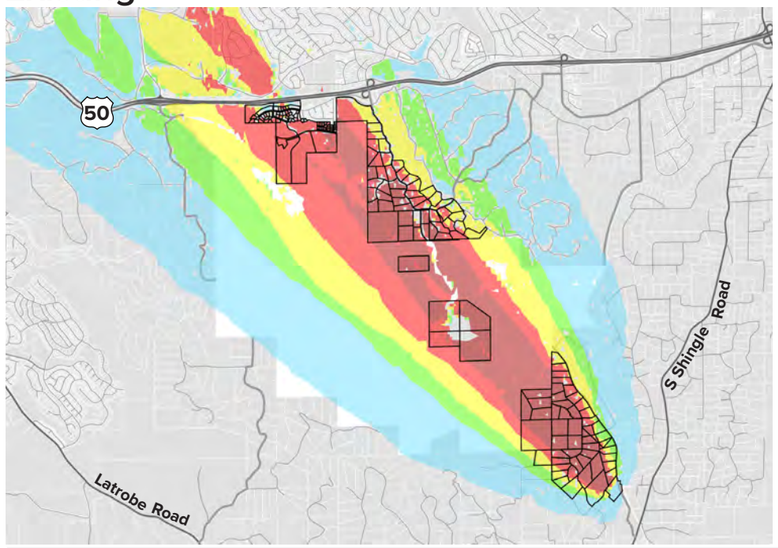
Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES2

Travel Time to Safety for Vulnerable Evacuees
Fire Scenario 4

Evacuation Begins at 11am

Existing



Vulnerable Evacuees

557 Existing Population **235** Existing Households **15** Existing Employees

132 Project Population **50** Project Households **0** Project Employees

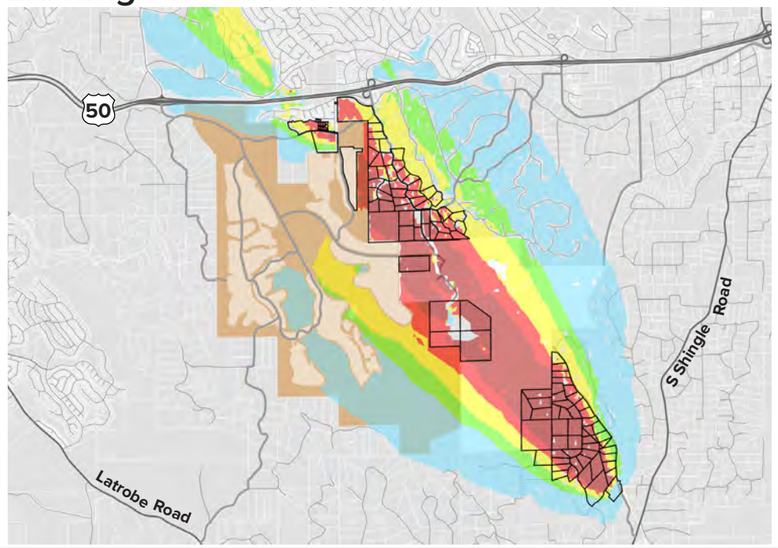
Evacuation Vehicle Trips

445 Existing Evacuees

Total Time to Safety (minutes)

20.4

Existing Plus MVSP



Vulnerable Evacuees

301 Existing Population **125** Existing Households **12** Existing Employees

132 Project Population **50** Project Households **0** Project Employees

Evacuation Vehicle Trips

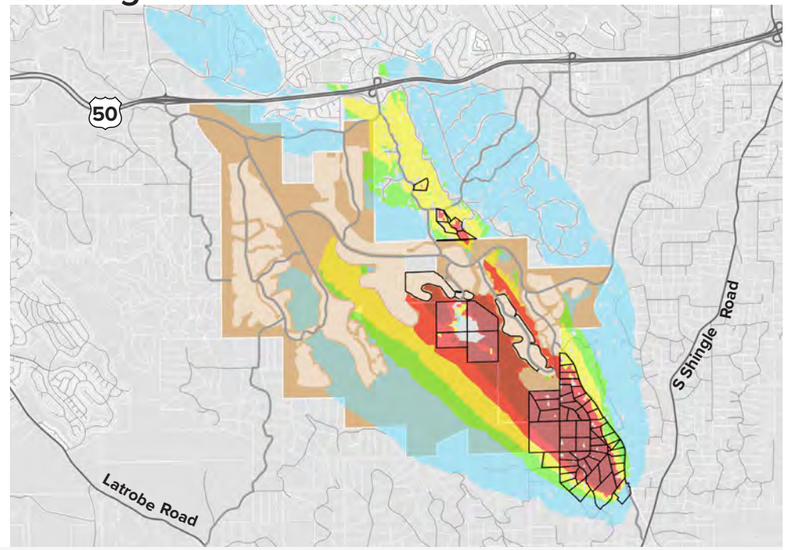
237 Existing Evacuees **95** Project Only Evacuees

Total Time to Safety (minutes)

19.9

19.1

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

207 Existing Population **86** Existing Households **0** Existing Employees

323 Project Population **128** Project Households **0** Project Employees

Evacuation Vehicle Trips

163 Existing Evacuees **243** Project Only Evacuees

Total Time to Safety (minutes)

19.9

18.2

Fire Progression (minutes): 30 60 120 180 240 Project Area Project Residential Area Vulnerable Parcels Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

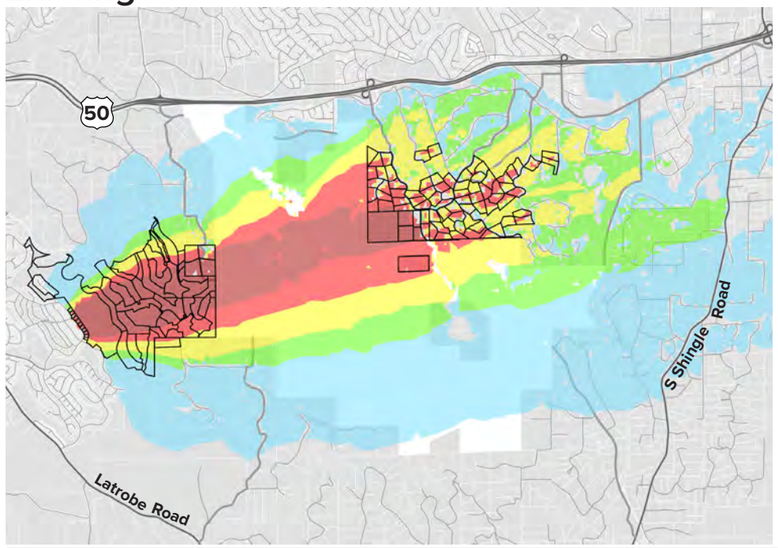
Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES3

Travel Time to Safety for Vulnerable Evacuees Fire Scenario 7

Evacuation Begins at 7am

Existing



Vulnerable Evacuees

112 Existing Population
46 Existing Households
6 Existing Employees

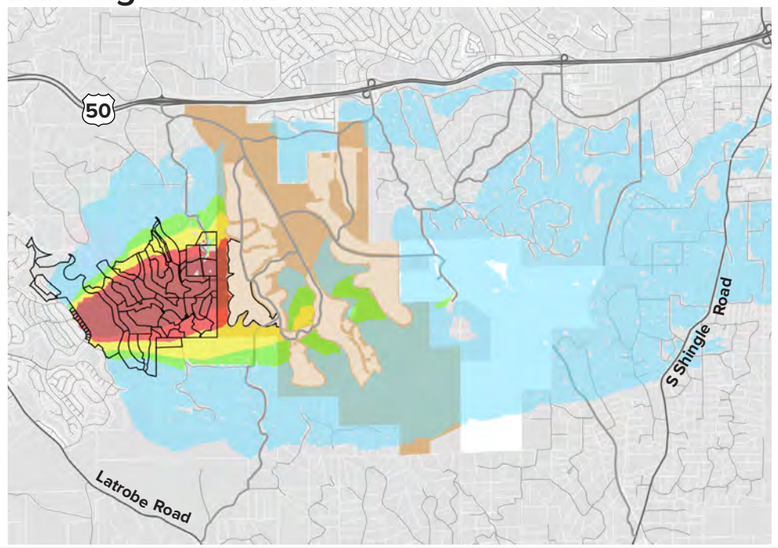
Evacuation Vehicle Trips

97 Existing Evacuees

Total Time to Safety (minutes)

17.7

Existing Plus MVSP



Vulnerable Evacuees

75 Existing Population
29 Existing Households
0 Existing Employees
124 Project Population
49 Project Households
0 Project Employees

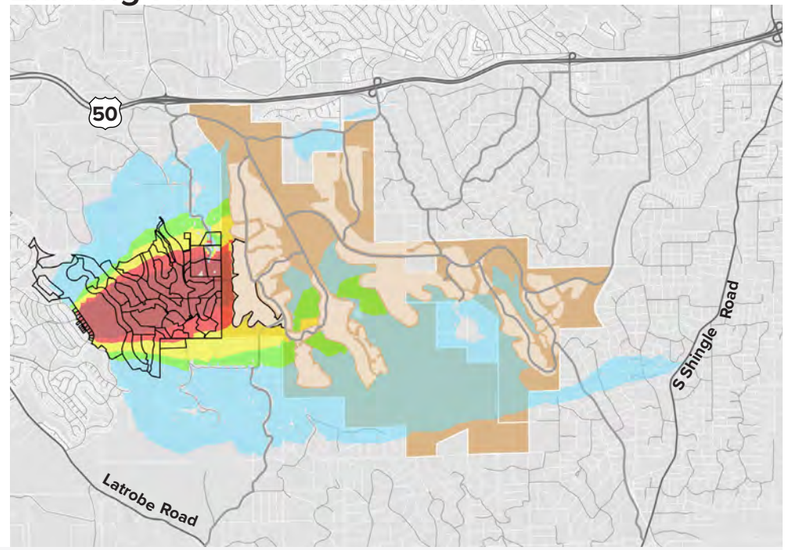
Evacuation Vehicle Trips

55 Existing Evacuees
93 Project Only Evacuees

Total Time to Safety (minutes)

17.5
18.1

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

75 Existing Population
29 Existing Households
0 Existing Employees
124 Project Population
49 Project Households
0 Project Employees

Evacuation Vehicle Trips

55 Existing Evacuees
93 Project Only Evacuees

Total Time to Safety (minutes)

17.5
18.1

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES4

Travel Time to Safety for Vulnerable Evacuees
Fire Scenario 16

Evacuation Begins at 1pm

FEHR PEERS

June 11, 2024

Lime Rock Valley Specific Plan

Project Element	Description
Project Area	• 740 Acres
Land Use	• 800 Dwelling Units
	• 335 Acres of Open Space
Regional Connectivity	• US 50/Bass Lake Road Interchange • US 50/Cambridge Road Interchange
Evacuation Routes	• 4 Available with Lime Rock Valley Specific Plan • 7 Available with both Lime Rock Valley and Village of Marble Valley Specific Plans

General Plan Improvement Concurrency

The Lime Rock Valley Specific Plan (Project) will comply with General Plan Policy. Specifically, each tentative map will be required to demonstrate consistency with Policy TC-Xf (included below) to ensure the concurrency of transportation improvement with development.

Policy TC-Xf	At the time of approval of a tentative map for a single family residential subdivision of five or more parcels that worsens (defined as a project that triggers Policy TC-Xe [A] or [B] or [C]) traffic on the County road system, the County shall do one of the following: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in this Transportation and Circulation Element based on existing traffic plus traffic generated from the development plus forecasted traffic growth at 10-years from project submittal; or (2) ensure the commencement of construction of the necessary road improvements are included in the County's 10-year CIP. For all other discretionary projects that worsen (defined as a project that triggers Policy TC-Xe [A] or [B] or [C]) traffic on the County road system, the County shall do one of the following: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in this Transportation and Circulation Element; or (2) ensure the construction of the necessary road improvements are included in the County's 20-year CIP.

As outlined, consistency with Policy TC-Xf, may be satisfied by direct construction of roadway improvements or payment of the County's Traffic Impact Fee, which funds the County's Capital Improvement Program (CIP). The 2023 adopted CIP is outlined below.

El Dorado County Capital Improvement Program (Adopted 2023)

Executive Summary
Capital Improvement Program Overview

A Capital Improvement Program (CIP) is a planning document that identifies capital improvement projects (e.g., roads and bridges) a local government or public agency intends to build over a certain time horizon (usually between five and twenty years). CIPs typically provide key information for each project, including delivery schedule, cost, and revenue sources. The County's CIP provides a means for the Board to determine capital improvement project and funding priorities over a 20-Year horizon.

In order to maintain the integrity of the County's roadway network, the County is required to implement General Plan Policy TC-Xb and Implementation Measures TC-A and TC-B. These measures require the development of a 5- 10- and 20-Year CIP. These policies also require an update of the twenty-year growth forecast every five years.

The forecast is needed to update the CIP and Traffic Impact Fee (TIF), formerly the Traffic Impact Mitigation (TIM) Fee Program. Forecasting growth is an iterative and ongoing process – forecasts are reviewed and adjusted annually, as well as every five years. Routinely verifying and updating growth forecasts allows the County to account for new information and adjust its assumptions and plans accordingly. A TIF is a fee levied by a local government or public agency to ensure that new development projects pay for all or a portion of the costs of providing public infrastructure or services to the new development. Since 1984, the County has adopted and updated various TIM Fee programs to ensure that new development on the western slope pays the costs of constructing and improving county and state roads necessary to serve new development. The TIF is paid at the time of issuance of a building permit (e.g., for single family home or non-residential buildings) or whenever appropriate if no building permit is being issued. TIF's are calculated pursuant to Government Code 66000 et. seq. and the County's General Plan policy. Generally, fees are based on the type of land use, quantity, location, impact on roads, and level of service (LOS). TIF's are assessed by one of three designated zone in which the development occurs. The TIF Program will receive a minor update in 2023 to reflect future changes.

Table 1 summarizes West Slope Roadway projects included in the Adopted 2023 CIP that are near the proposed Project that will address existing operations and accommodate planned growth.

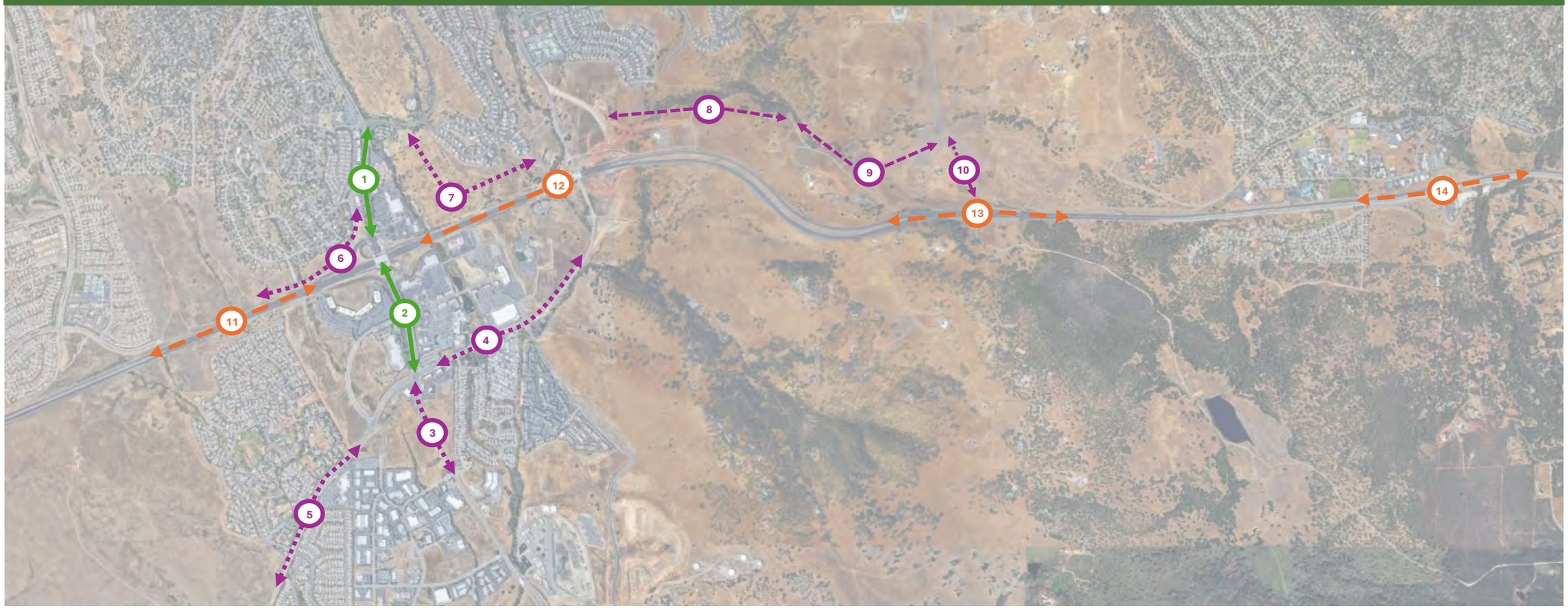
The roadway projects are grouped into the following categories:

- **Projects Under/Nearing Construction** – Shown in **Green**, these projects are under construction or nearing construction and will address key operational issues that drivers experience today. These projects are located on County roadways.
- **Project on County Roadways** – Shown in **purple**, these projects will add capacity to the County's roadways and in most cases add parallel capacity to US 50.
- **US 50 Capacity Projects** – Shown in **Orange**, these projects will add capacity to US 50.

The location and general limits of the roadway improvement projects are shown in **Figure 1**.

Table 1: 2023 CIP West Slope Roadway Projects Near the Lime Rock Valley Specific Plan				
ID	**Location**	**Improvement**	**CIP Project Number**	**Project Status**
1	El Dorado Hills Blvd / Saratoga Wy	• Extend NB Left-Turn Pocket • Add SB Right-Turn Pocket	36105076	GREEN
2	US 50 / El Dorado Hills Blvd Interchange Improvements Phase 2B	• Widen Latrobe Rd / El Dorado Hills Blvd	36104001	
3	Latrobe Rd – Golden Foothill Pkwy (N) to White Rock Rd	• Widen to 6 Lanes	36105069	PURPLE
4	White Rock Rd Widening – Post St to South of Silva Valley Pkwy	• Widen to 4 Lanes	36105042	
5	White Rock Rd Widening – Windfield Wy to Sacramento Co Line	• Widen to 4 Lanes	36105041	
6	Saratoga Wy Widening – Phase 2	• Widen to 4 Lanes	36105035	
7	Country Club Dr – East of El Dorado Hills Blvd to Silva Valley	• Construct New 2-Lane Roadway	36105007	
8	Country Club Dr – Silva Valley Pkwy to Tong Rd	• Construct New 2-Lane Roadway	36105008	
9	Country Club Dr – Tong Rd to Bass Lake Rd	• Construct New 2-Lane Roadway	36105009	
10	Bass Lake Rd Widening (US 50 to Country Club Dr Realigned)	• Widen to 4 Lanes	36105054	
11	US 50 Auxiliary Lane WB – El Dorado Hills Blvd to Sacramento Co Line	• Construct WB Auxiliary Lane	36104021	ORANGE
12	US 50 / Silva Valley Pkwy Interchange (Phase 2) – On Ramps and Auxiliary Lane on US 50	• Construct EB Slip On-Ramp • Construct WB Loop On-Ramp • Construct WB US 50 Auxiliary Lane	36104004	
13	US 50/Bass Lake Rd Interchange Improvements	• Ramp Widening • Road Widening • Traffic Signal Installation/Modification	36104005	
14	US 50/Cambridge Rd Interchange Improvements	• Ramp Widening/Intersection Capacity • New Westbound On-Ramp • Traffic Signal Installation/Modification at Eastbound Ramps	36104006	

Figure 1:
2023 CIP West Slope Roadway Projects Near the Lime Rock Valley Specific Plan



Evacuation Time Estimates

The evacuation time estimates and conclusions presented below are summarized based on the comprehensive analyses documented in the following reports:

- *Lime Rock Valley Specific Plan Fire Evacuation Assessment – Draft* (Fehr & Peers, November 3, 2023). The document can be found at Draft Environmental Impact Report Appendix N (Evacuation Analysis).
- *Wildland Fire Evacuation Risk Report – Fire Behavior – Lime Rock Project* (Firesafe Planning Solutions, November 1, 2023). The document can be found at Draft Environmental Impact Report Appendix M (Wildfire Risk Assessment).

Purpose

The purpose of a wildfire evacuation assessment is to address CEQA guidance released by the Attorney General in response to recent California Environmental Quality Act (CEQA) court decisions and compliance with CalFire regulations related to wildfire evacuation and emergency access.

Chapter 3.7 (Hazards and Hazardous Materials) of the Draft Environmental Impact Report (DEIR) discusses wildfire and evacuation.

Study Fire Scenarios

Firesafe Planning Solutions conducted fire behavior modeling for 16 locations surrounding the study area and included different wind direction and speed assumptions, resulting in a total of 33 fire scenarios. Each scenario also includes analysis of existing development, existing development plus the Lime Rock Valley Specific Plan, existing development plus the Village of Marble Valley Specific Plan, and existing development plus the development of both specific plans, resulting in a total of 132 fire behavior modeling scenarios.

Fehr & Peers screened all the fire scenarios developed by Firesafe Planning Solutions to identify a worst case set of fire scenarios to use for the evacuation time estimates. The screening considered the availability of evacuation routes and affected areas under existing (i.e., no Project) conditions and existing conditions with the addition of the Project. Based on this screening, the fire scenarios developed from Locations 2, 4, 7, and 16 were selected for the evacuation time estimate assessment. These four scenarios were selected because they would produce the fewest routes available for evacuation for the shortest amount of time. The evacuation performance of the other fire scenarios would be similar to or better than these scenarios. Therefore, detailed analysis is not necessary, and their performance can be inferred using the results of the worst-case fire scenarios.

Results and Conclusions

Evacuation time is used as a metric to evaluate evacuation performance.

As outlined in the *Wildland Fire Evacuation Risk Report – Fire Behavior – Lime Rock Project*, the fire scenarios modeled are extreme and the results indicate the fire will be traveling at a rate faster than fire suppression activity will allow for control lines. The size, location and configuration of the Project site makes it unlikely that a fire will impact the entire evacuation area, but rather the fire will impact different portions over time. Therefore, evacuation time estimates for self-evacuation conditions were analyzed.

Self-evacuation refers to the evacuation of populations in the direct path of the fire where advanced notice is not available due to the fire's progression. These vulnerable populations are in the red areas (i.e., where the fire's progression is 60 minutes or less) shown in **Figures ES1 through ES4**. As analyzed, evacuation is assumed to begin within 15 minutes of the fire's recognition. However, self-evacuation may be a part of an Ordered Evacuation[1], representing an initial phase of the evacuation that occurs before the Sheriff issues an order to evacuate. Evacuation time is estimated from the evacuation trip origin to the closest safe location not in the direct path of the fire.

As shown, the addition of the Project slows the progression of the fire event. Consequently, the vulnerable population in the existing community areas will decrease compared to existing conditions due to the fuels removed by the Project, fuels management activities, and the creation of fire breaks conducted around the Project perimeter. Under Fire Scenarios 2 and 4, all the existing community areas would be outside the vulnerable areas with the addition of both the Project and the Village of Marble Valley Specific Plan.

For all fire scenarios, it would take less than about 20 minutes to move all the vulnerable evacuees (i.e., existing or Project evacuees) to a safe location. The maximum total time to safety would decrease for existing vulnerable evacuees with the Project, resulting from the following factors:

- Additional Evacuation Routes – The Project will provide additional evacuation routes for ingress and egress.
- Slowed Fire Progression – Removal of fuels and vegetation will slow fire progression.

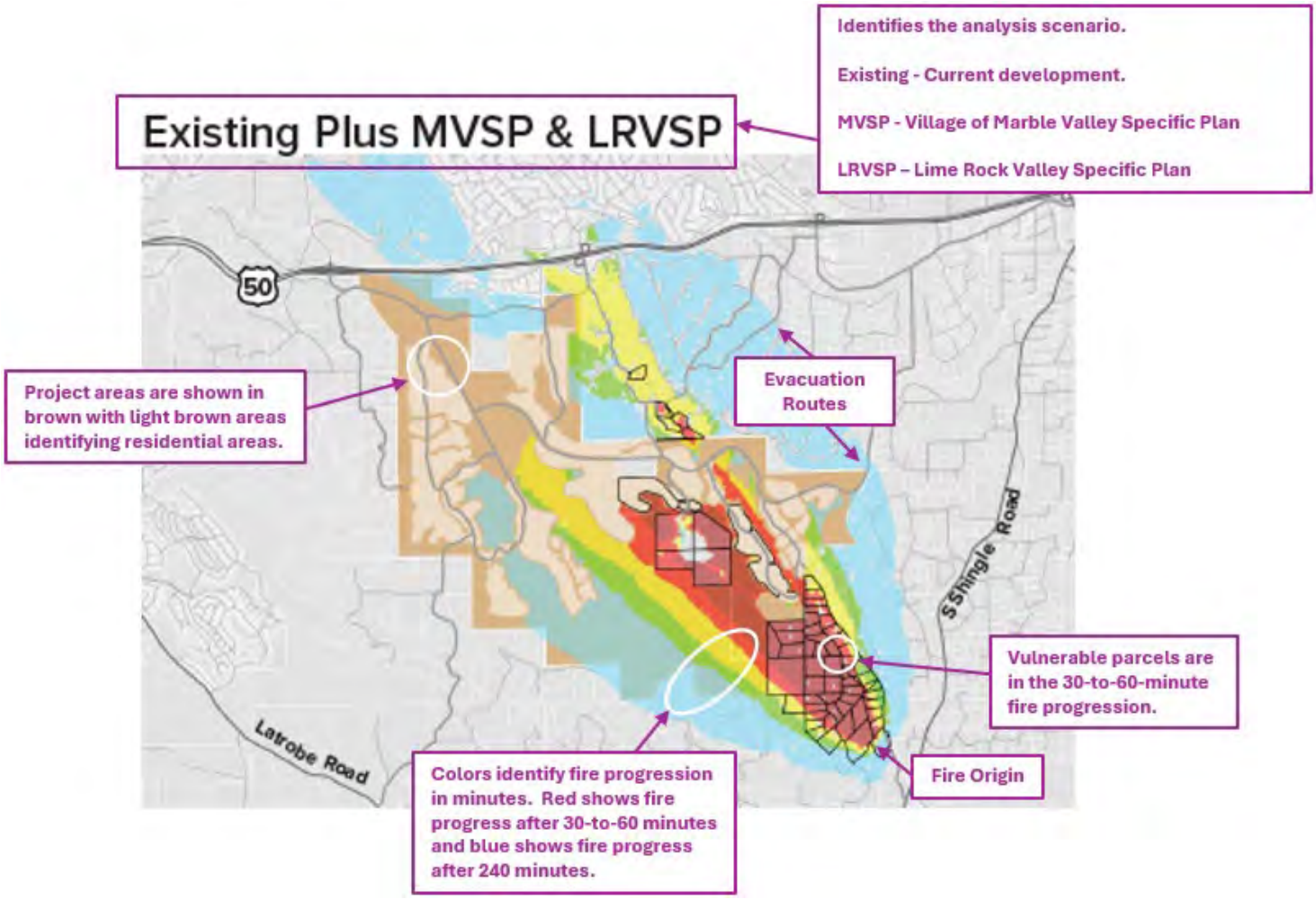
[1] Ordered Evacuation – Represents the evacuation of the entire population (residents, students, employees, and visitors) in the evacuation area for an event with ample notice where emergency services are participating in the evacuation. As analyzed, the evacuation window is 3 hours (180 minutes) beginning from the Sheriff ordering the evacuation. Evacuation time is estimated from the evacuation trip origin to the study area gateways, outside the study area. Refer to Draft Environmental Impact Report Appendix M for assessment of the Ordered Evacuation.

- Fuel Management – Fuel management activities occurring with the Project will create additional safe areas for vulnerable evacuees to access.

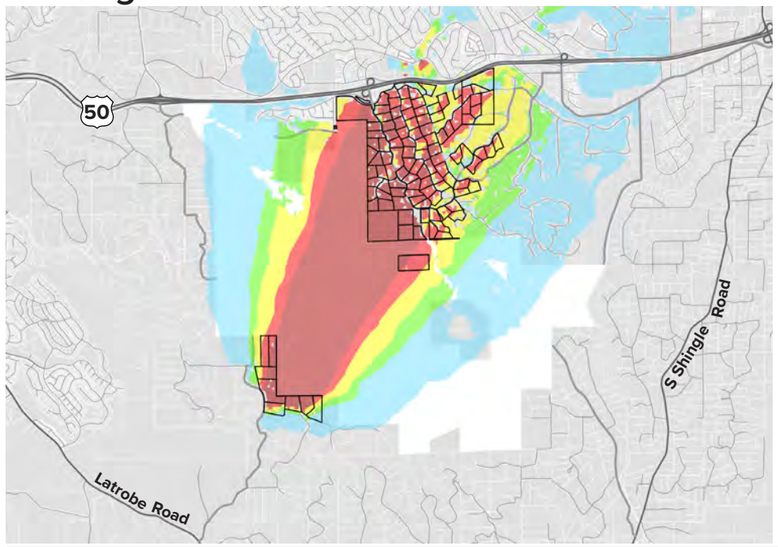
Impact Finding

With implementation of the risk reduction measures set forth in *Wildland Fire Evacuation Risk Report – Fire Behavior – Lime Rock Project*, the proposed development area 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.

Interpreting the Travel Time to Safety for Vulnerable Evacuees Graphics



Existing



Vulnerable Evacuees

108 Existing Population
45 Existing Households
20 Existing Employees

0 Project Population
0 Project Households
0 Project Employees

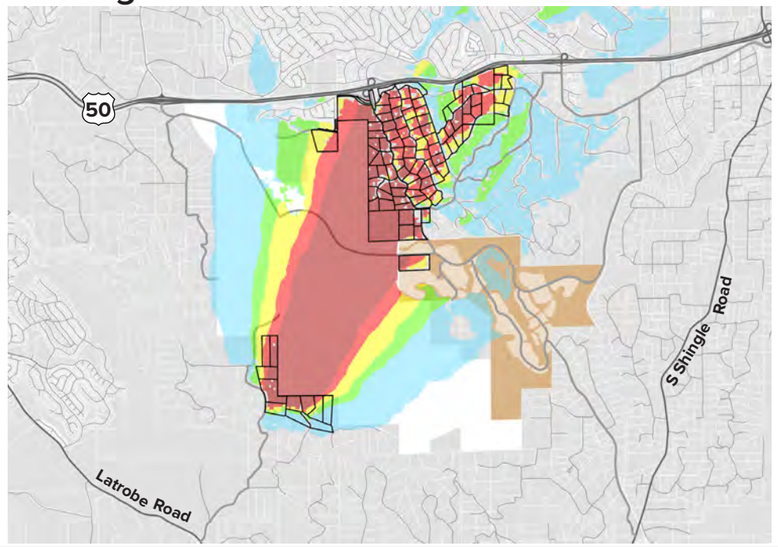
Evacuation Vehicle Trips

85 Existing Evacuees

Total Time to Safety (minutes)

18.1

Existing Plus LRVSP



Vulnerable Evacuees

108 Existing Population
45 Existing Households
20 Existing Employees

0 Project Population
0 Project Households
0 Project Employees

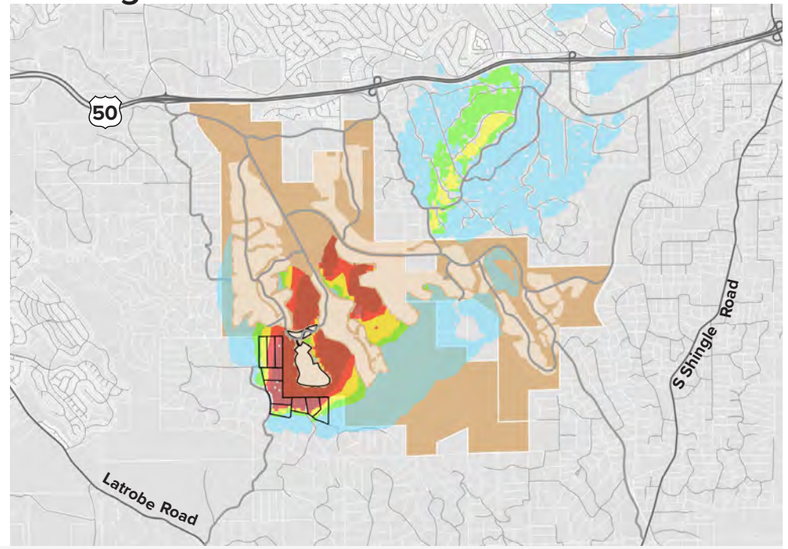
Evacuation Vehicle Trips

73 Existing Evacuees
0 Project Only Evacuees

Total Time to Safety (minutes)

17.9
N/A

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

0 Existing Population
0 Existing Households
0 Existing Employees

264 Project Population
100 Project Households
0 Project Employees

Evacuation Vehicle Trips

0 Existing Evacuees
189 Project Only Evacuees

Total Time to Safety (minutes)

N/A
19.1

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

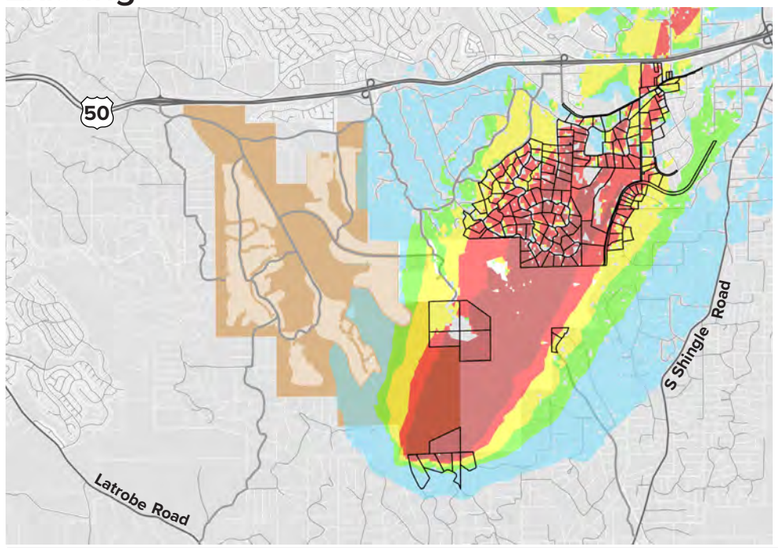
Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES1

Travel Time to Safety for Vulnerable Evacuees
Fire Scenario 2

Evacuation Begins at 11am

Existing



Vulnerable Evacuees

193 Existing Population
80 Existing Households
241 Existing Employees

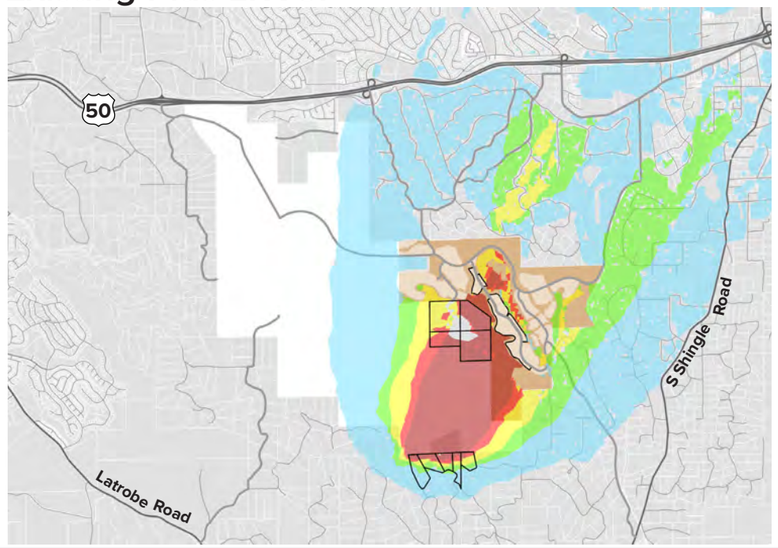
Evacuation Vehicle Trips

212 Existing Evacuees

Total Time to Safety (minutes)

19.8

Existing Plus LRVSP



Vulnerable Evacuees

0 Existing Population
0 Existing Households
0 Existing Employees
404 Project Population
160 Project Households
0 Project Employees

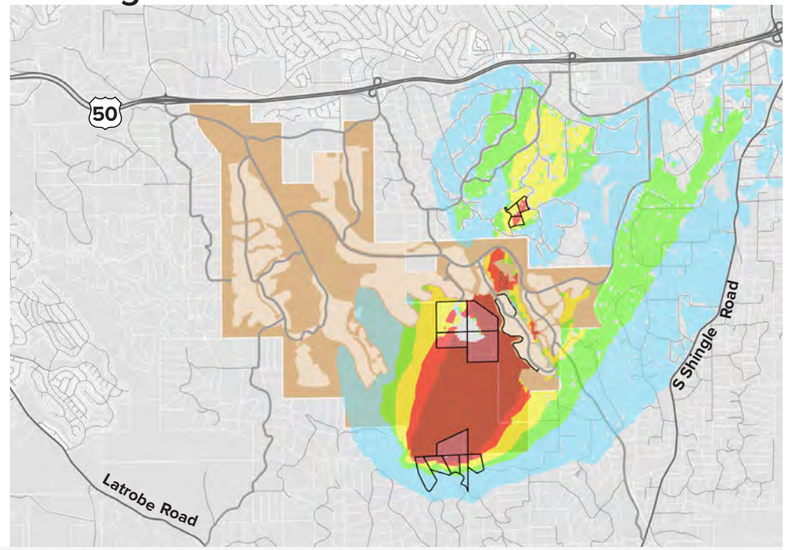
Evacuation Vehicle Trips

0 Existing Evacuees
303 Project Only Evacuees

Total Time to Safety (minutes)

N/A
18.2

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

0 Existing Population
0 Existing Households
0 Existing Employees
404 Project Population
160 Project Households
0 Project Employees

Evacuation Vehicle Trips

0 Existing Evacuees
303 Project Only Evacuees

Total Time to Safety (minutes)

N/A
18.2

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

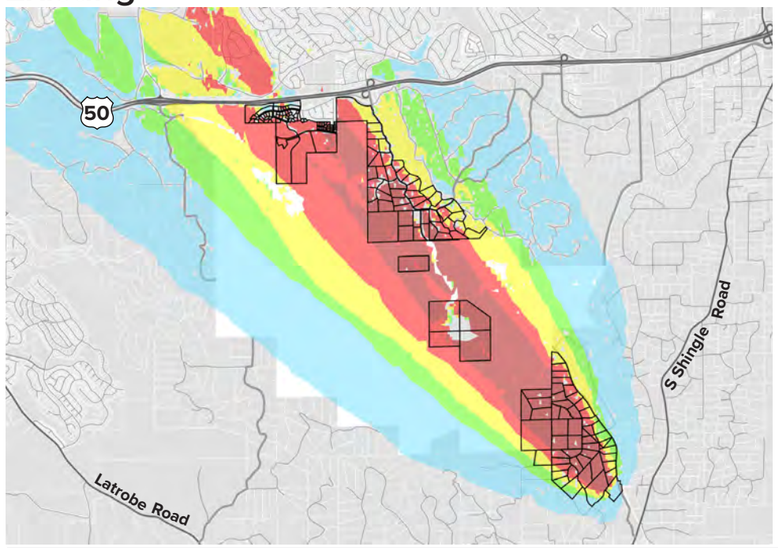
Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES2

Travel Time to Safety for Vulnerable Evacuees
Fire Scenario 4

Evacuation Begins at 11am

Existing



Vulnerable Evacuees

557 Existing Population **235** Existing Households **15** Existing Employees

323 Project Population **128** Project Households **0** Project Employees

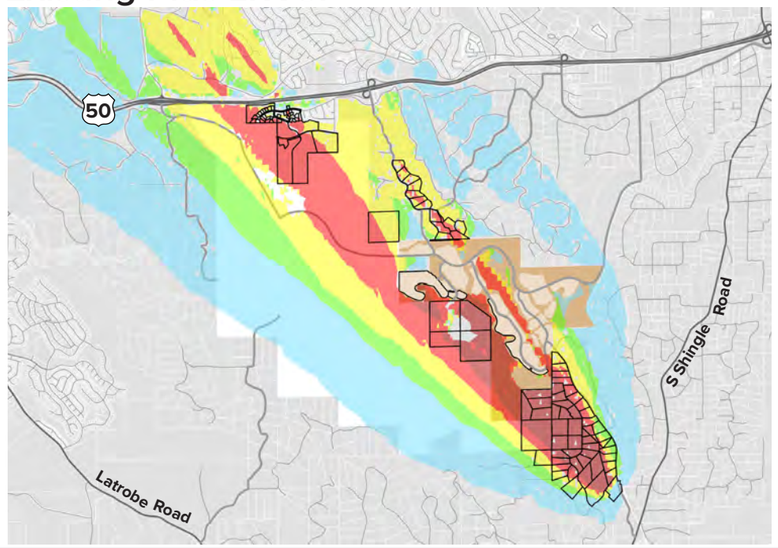
Evacuation Vehicle Trips

445 Existing Evacuees

Total Time to Safety (minutes)

20.4

Existing Plus LRVSP



Vulnerable Evacuees

284 Existing Population **119** Existing Households **1** Existing Employees

323 Project Population **128** Project Households **0** Project Employees

Evacuation Vehicle Trips

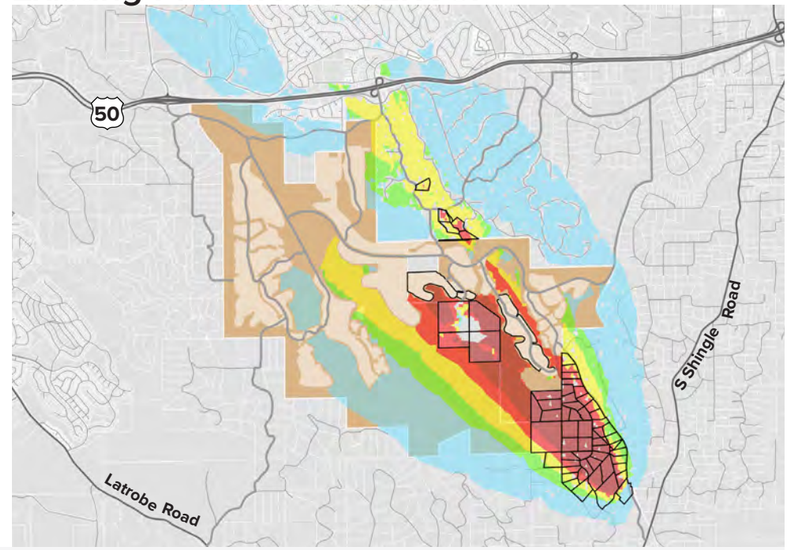
248 Existing Evacuees **243** Project Only Evacuees

Total Time to Safety (minutes)

19.9

18.2

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

207 Existing Population **86** Existing Households **0** Existing Employees

323 Project Population **128** Project Households **0** Project Employees

Evacuation Vehicle Trips

163 Existing Evacuees **243** Project Only Evacuees

Total Time to Safety (minutes)

19.9

18.2

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

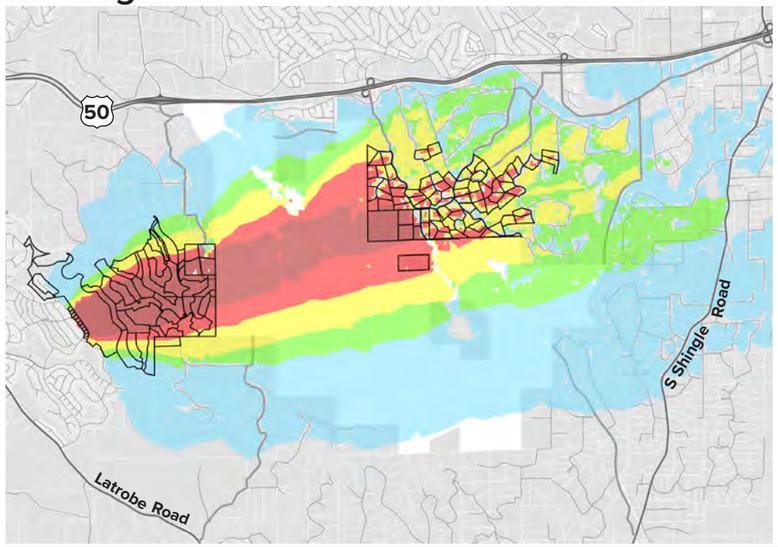
Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES3

Travel Time to Safety for Vulnerable Evacuees Fire Scenario 7

Evacuation Begins at 7am

Existing



Vulnerable Evacuees

112 Existing Population
46 Existing Households
6 Existing Employees

0 Project Population
0 Project Households
0 Project Employees

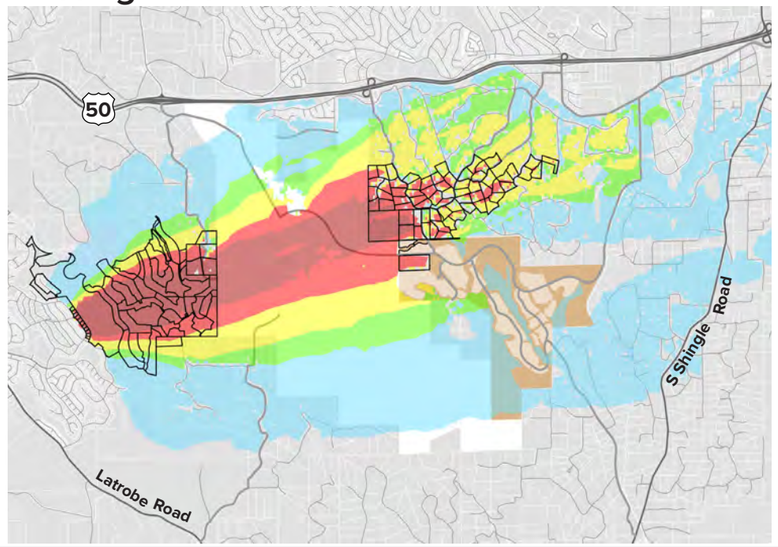
Evacuation Vehicle Trips

97 Existing Evacuees

Total Time to Safety (minutes)

17.7

Existing Plus LRVSP



Vulnerable Evacuees

105 Existing Population
42 Existing Households
6 Existing Employees

0 Project Population
0 Project Households
0 Project Employees

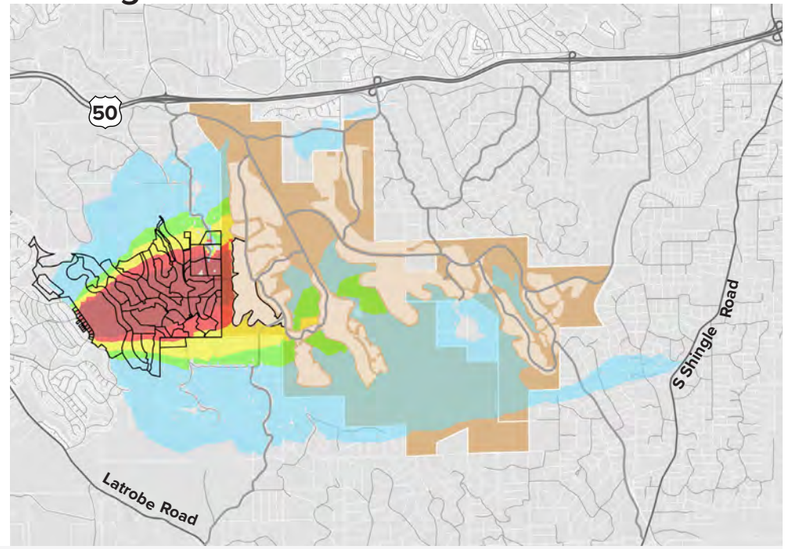
Evacuation Vehicle Trips

84 Existing Evacuees
0 Project Only Evacuees

Total Time to Safety (minutes)

17.7
N/A

Existing Plus MVSP & LRVSP



Vulnerable Evacuees

75 Existing Population
29 Existing Households
0 Existing Employees

124 Project Population
49 Project Households
0 Project Employees

Evacuation Vehicle Trips

55 Existing Evacuees
93 Project Only Evacuees

Total Time to Safety (minutes)

17.5
18.1

Fire Progression (minutes): 30 | 60 | 120 | 180 | 240 | Project Area | Project Residential Area | Vulnerable Parcels | Evacuation Routes

Vulnerable evacuees are the population directly in the path of the fire (Red Area <= 60 minute fire progression). They are assumed to start self evacuation immediately, i.e., within 15 minutes of fire.

Travel time to safety is defined as the time required for the vulnerable evacuees to exit the red area.

Figure ES4

Travel Time to Safety for Vulnerable Evacuees
Fire Scenario 16

Evacuation Begins at 1pm