



September 23, 2019

# SAN JOSÉ DIRIDON STATION

*Big Moves Design Workshop*

## Cooperative Agreement

- Work as a cohesive group
- Shared vision for a fresh, bold look
- Co-create an *integrated* project (i.e., tracks, station, development)
- Partner resources & commitments (funding, grants, etc.)
- “You won’t get everything you want, but you will get more than you expected!”

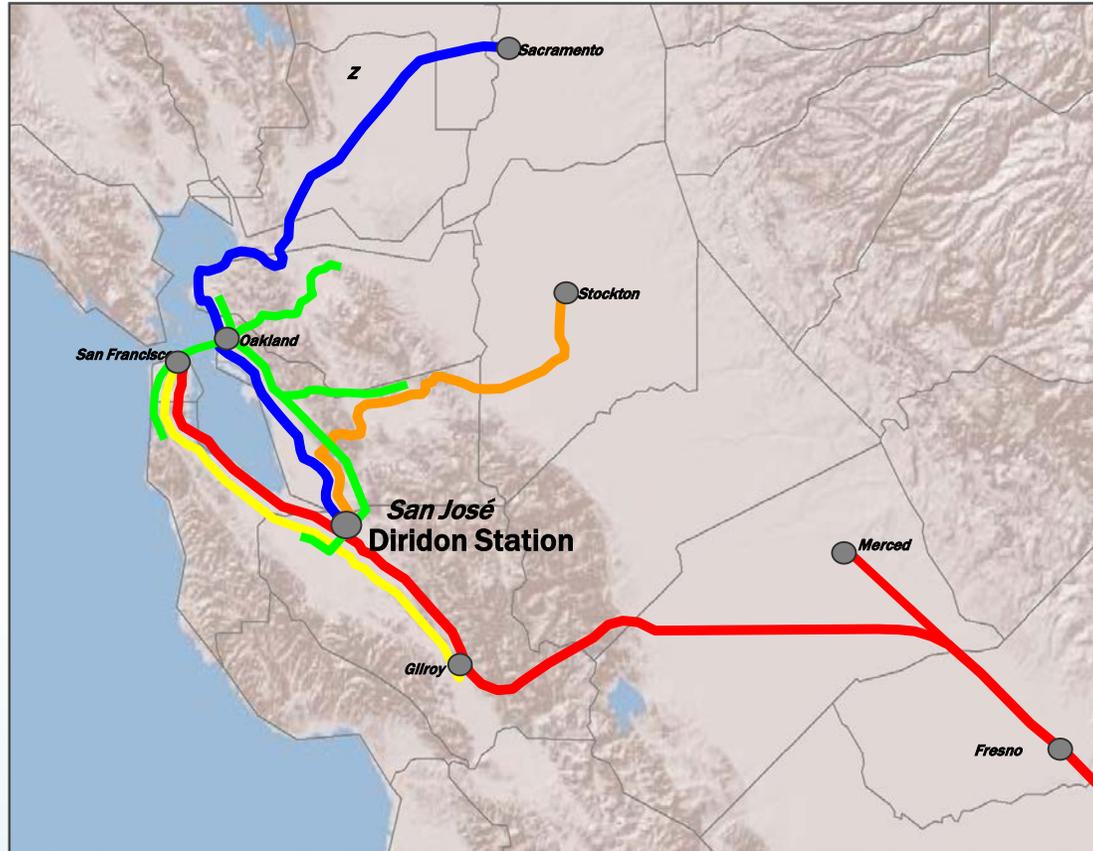


## Today's Agenda

- Project background
- Design update
- More on the big rail moves
- Community benefits and trade-offs
- Small group workshop

## Expanding Rail Service at Diridon

Planned Major Regional Rail Services San Jose Diridon



**High-Speed Rail**



**BART**



**Caltrain**



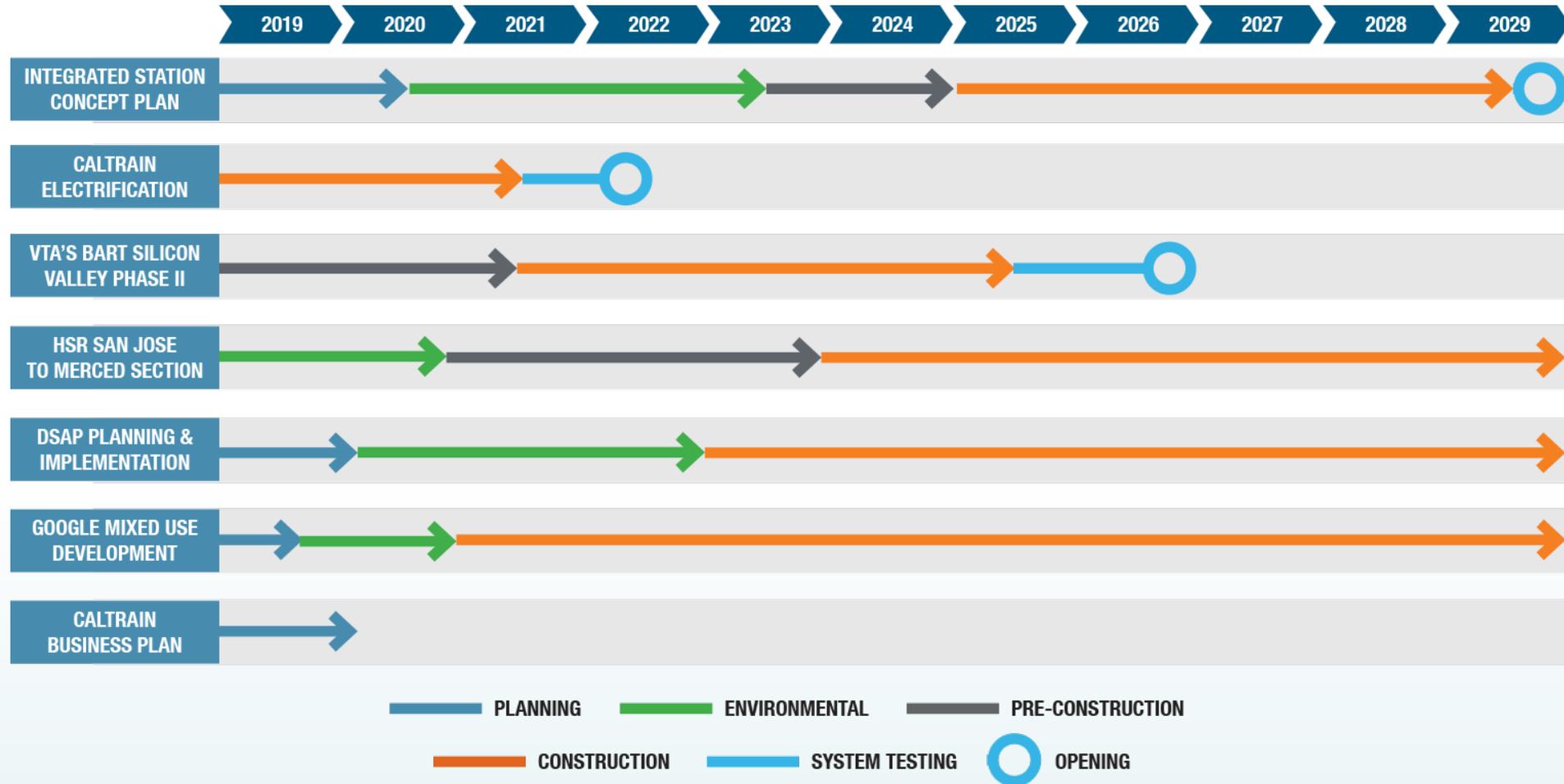
**ACE**



**Capitol Corridor**

There are many plans that contemplate significant growth in passenger rail services in California and at San Jose Diridon Station, including the 2018 CA State Rail Plan, the Caltrain Business Plan, as well as the introduction of BART and California High Speed Rail.

## Projects & Timing



This schedule illustrates just how many projects are occurring in the Diridon Station Area, and shows how important the coordination and collaboration between stakeholders is!



## DIRIDON INTEGRATED STATION CONCEPT PLAN

The Concept Plan will establish:

- Seamless connections between transportation modes
- A harmonious relationship between the station and surroundings
- An effective organizational structure to deliver the vision

## Key Objectives



**A Multi-modal, Integrated, and Human-centered Station**



**The Station as Catalyst for the Urban Environment**



**The Station as a Destination**



**A Compelling Vision for the Future of the Diridon Station**



**A Futureproof, Flexible, Adaptive, and Innovative Station**



**Partnership Organization**

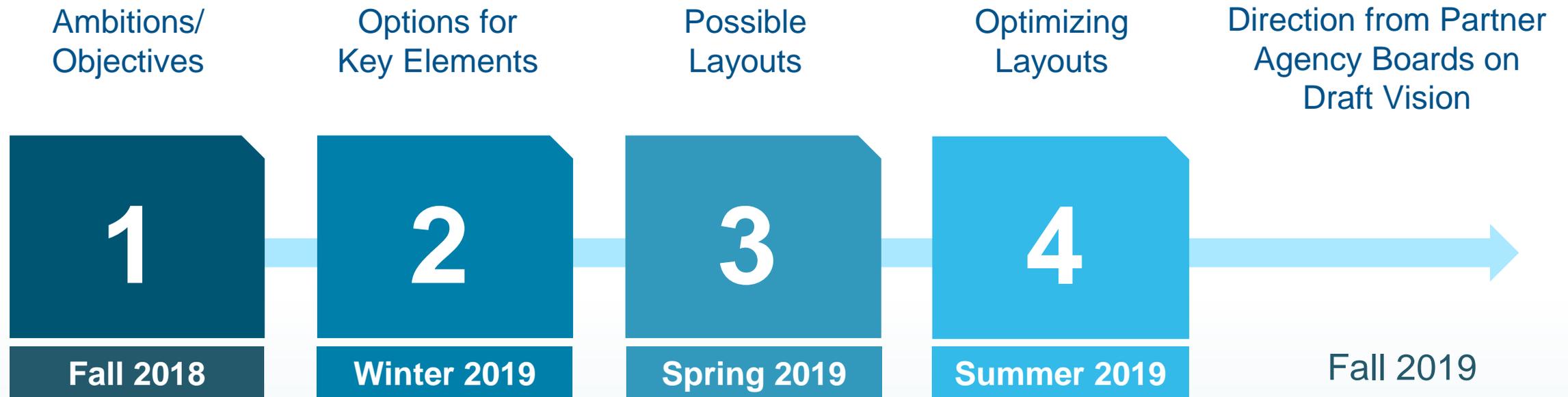


**Internal & External Stakeholder**



**Funding Objectives and Risk Management**

## Phase I Process & Outreach Rounds



## Iterative Process

Examples:

 Understanding Requirements

 Listening to Ambitions

 Hearing from the Community

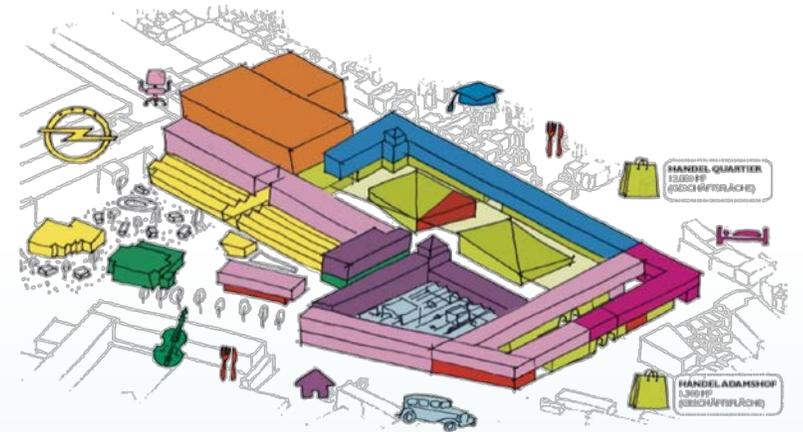
 Iterating Ideas

Assessment by:

 **ARCADIS** | Design & Consultancy  
for natural and built assets

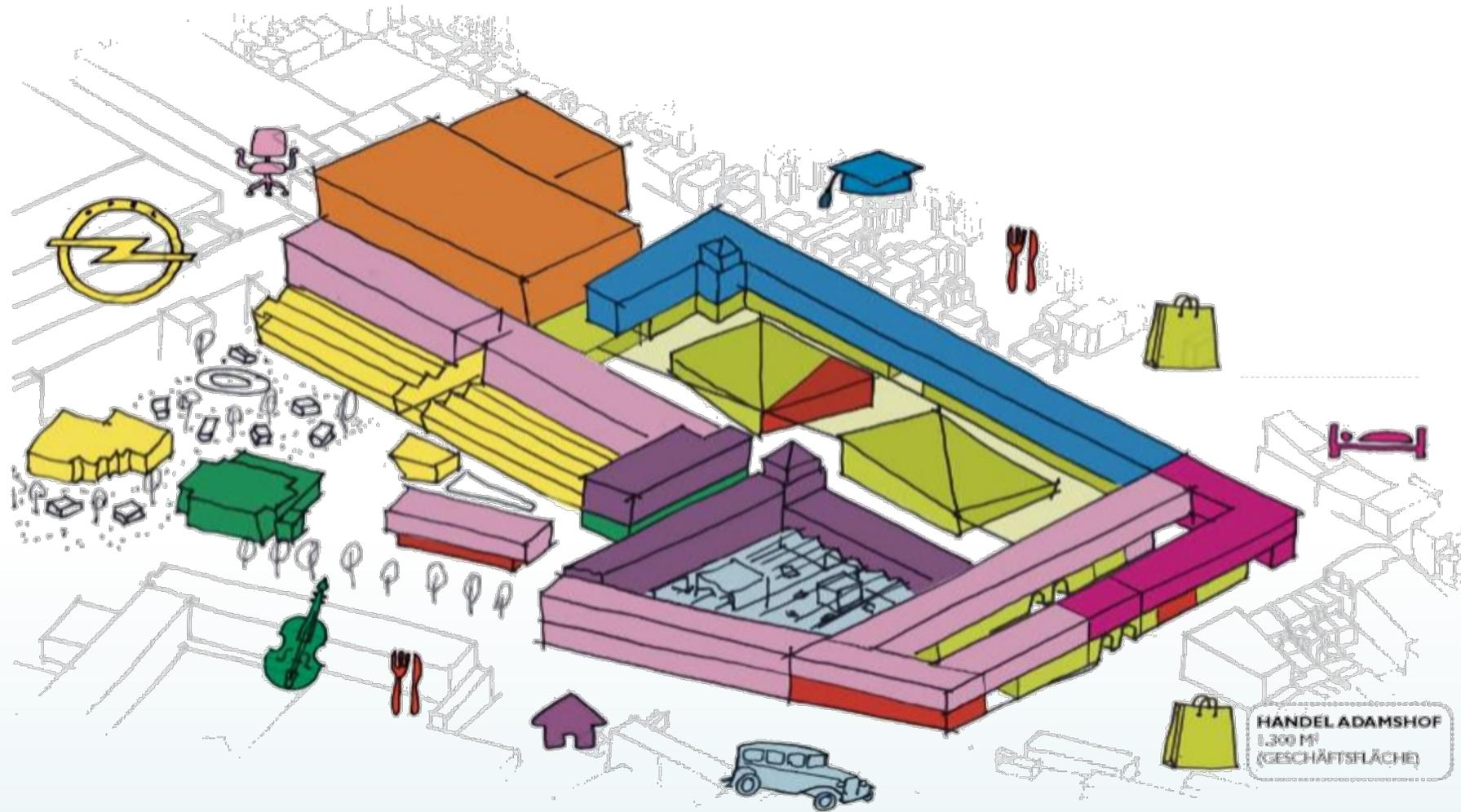
**BNTHMCRWL**  
BENTHEM.CROUWEL ARCHITECTS

Ideas with Promise



# **BIG MOVES & THE KIT OF PARTS**

# SAN JOSÉ DIRIDON STATION



This is an example from a Dutch project to illustrate the idea for “kit of parts”. These are the “legos”, or building blocks, that come together to form the spatial organization for the Big Moves and the Kit of Parts.

## Big Moves

### Vertical Platform Position

- At grade
- Elevated

### Station Location

- San Fernando Street
- Santa Clara Street
- Stover Street

### North Alignment

- Existing Northern Corridor
- New Northern Corridor

### South Alignment

- Existing Southern Corridor
- I-280 & Existing Southern Corridor

## The Kit of Parts

- Pedestrian
- Bikes
- Light Rail
- VTA bus
- BART
- Intercity buses
- Airport Connector
- Taxis, Transportation Network Company (TNC), Autonomous Vehicles (AV), company shuttles, pick up & drop off
- Parking

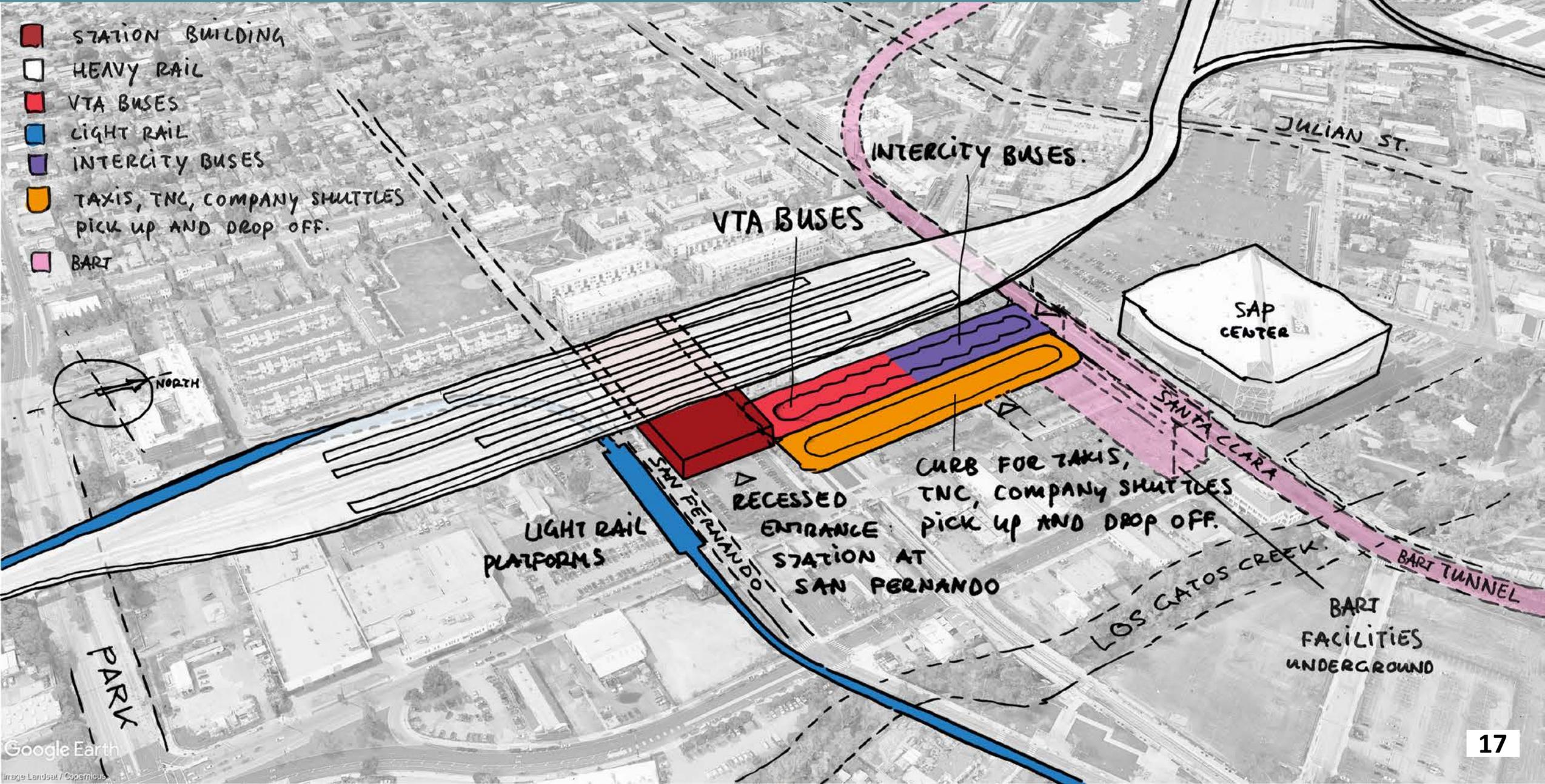
## Glossary of Terms

- **Multi-modal hub:** a centralized location where several modes of transportation connect
- **Big moves:** long-lasting decisions that inform the creation of major infrastructure
- **Kit of parts:** smaller, more flexible access elements of a station such as bus location
- **Layout:** a combination of elements that creates a design of the station and intermodal hub
- **Future-proof:** built to accommodate growth in demand over the next 100 years
- **Viaduct:** a bridge built for elevated rail tracks
- **Flyover:** an overpass that crosses over another road or rail road to provide a grade separation between different transportation modes

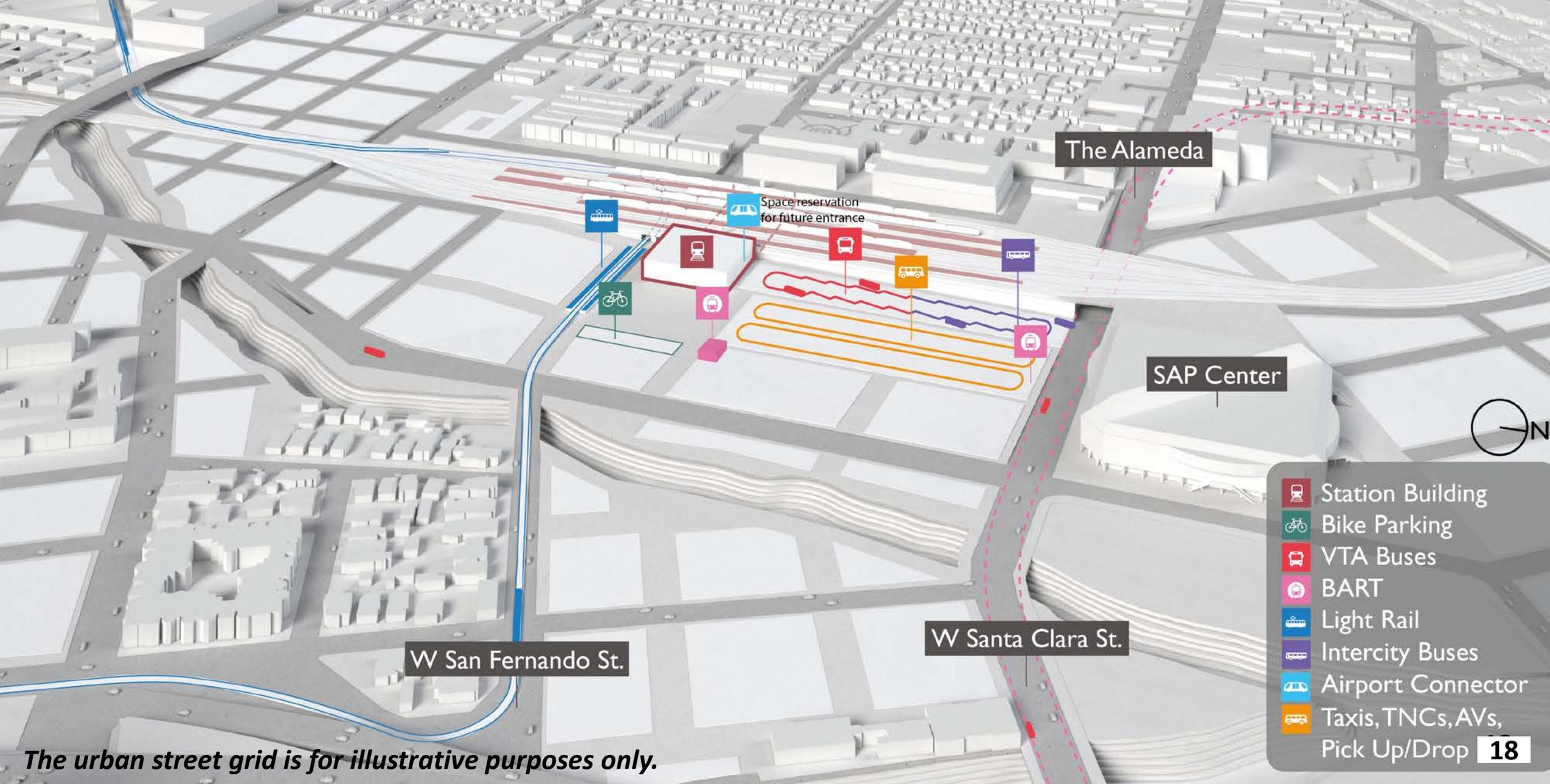
*The following slides show the three potential layouts presented to the community during the June 2019 community meeting. These are the combinations of the Big Moves and Kit of Parts that the Partner Agencies asked for feedback on.*

# LAYOUT 1: SAN FERNANDO STREET

# AT-GRADE: SAN FERNANDO – ALL ACCESS MODES



# AT-GRADE: SAN FERNANDO – ALL ACCESS MODES



The Alameda

Space reservation  
for future entrance

SAP Center

W San Fernando St.

W Santa Clara St.

- Station Building
- Bike Parking
- VTA Buses
- BART
- Light Rail
- Intercity Buses
- Airport Connector
- Taxis, TNCs, AVs,  
Pick Up/Drop

*The urban street grid is for illustrative purposes only.*

**LAYOUT 2: SANTA CLARA STREET**

# ELEVATED: SANTA CLARA – ALL ACCESS MODES

- STATION BUILDING
- HEAVY RAIL
- VTA BUSES
- LIGHT RAIL
- INTERCITY BUSES
- TAXIS, TNC, COMPANY SHUTTLES PICK UP AND DROP OFF.
- BART



LIGHT RAIL ALIGNMENT ELEVATED

2<sup>ND</sup> ENTRANCE

JULIAN ST.

BART FACILITIES UNDERGROUND

SAP

LIGHT RAIL PLATFORMS

STATION

SANTA CLARA

BART TUNNEL

VTA BUSES

CURB SPACES FOR TAXIS, TNC, COMPANY SHUTTLES, PICK UP DROP OFF.

CURB SPACE FOR INTERCITY BUSES.

PARK

SAN FERNANDO

LOS GATOS CREEK

# ELEVATED: SANTA CLARA – ALL ACCESS MODES



The Alameda

SAP Center

W San Fernando St.

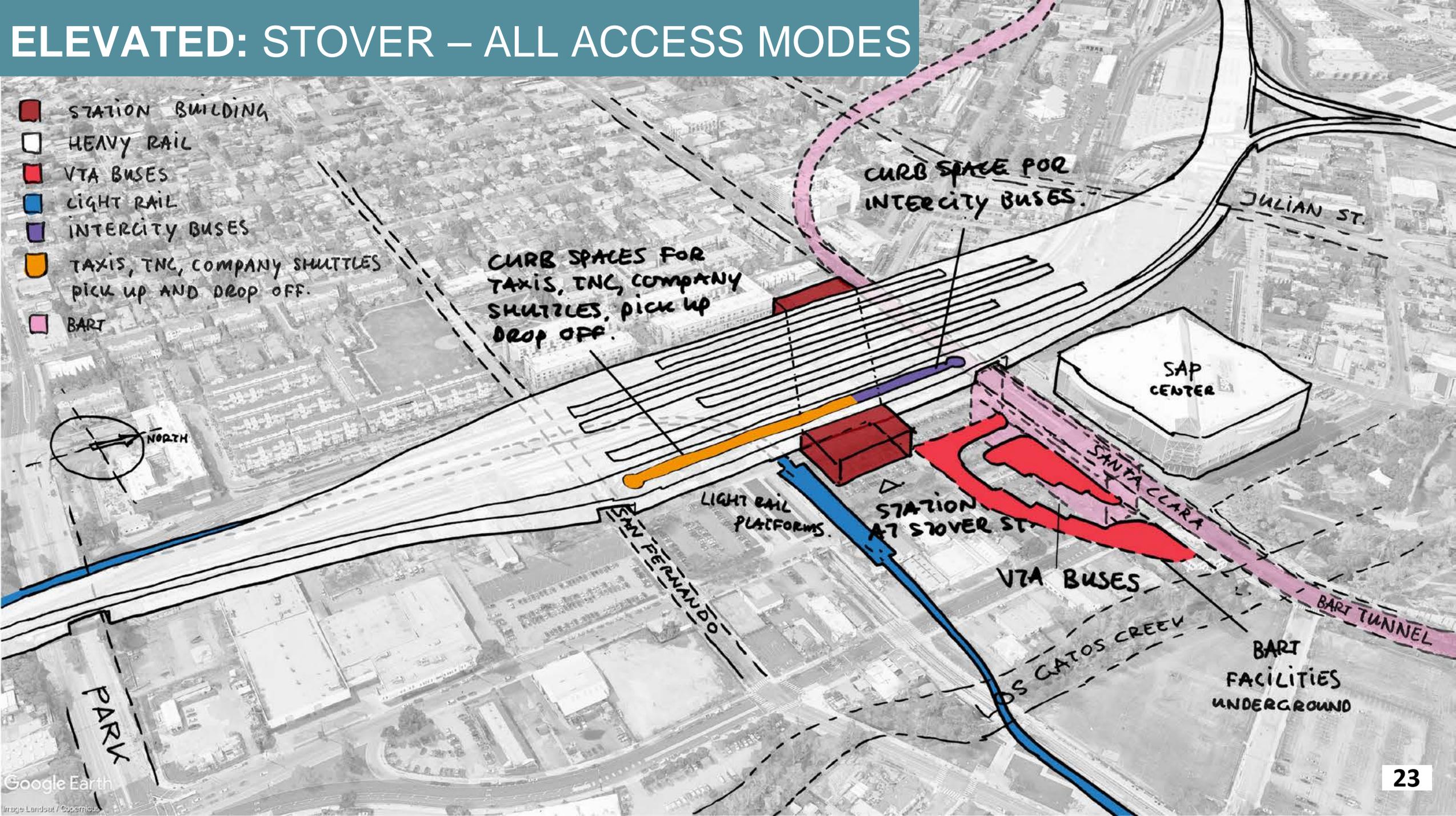
W Santa Clara St.

Space reservation for future entrance

- Station Building
- Bike Parking
- VTA Buses
- BART
- Light Rail
- Intercity Buses
- Airport Connector
- Taxis, TNCs, AVs, Pick Up/Drop

*The urban street grid is for illustrative purposes only.*

**LAYOUT 3: STOVER STREET**



# ELEVATED: STOVER – ALL ACCESS MODES

- STATION BUILDING
- HEAVY RAIL
- VTA BUSES
- LIGHT RAIL
- INTERCITY BUSES
- TAXIS, TNC, COMPANY SHUTTLES PICK UP AND DROP OFF.
- BART

CURB SPACES FOR TAXIS, TNC, COMPANY SHUTTLES, PICK UP DROP OFF.

CURB SPACE FOR INTERCITY BUSES.



SAP CENTER

STATION AT STOVER ST.

LIGHT RAIL PLATFORMS.

VTA BUSES

BART FACILITIES UNDERGROUND

JULIAN ST.

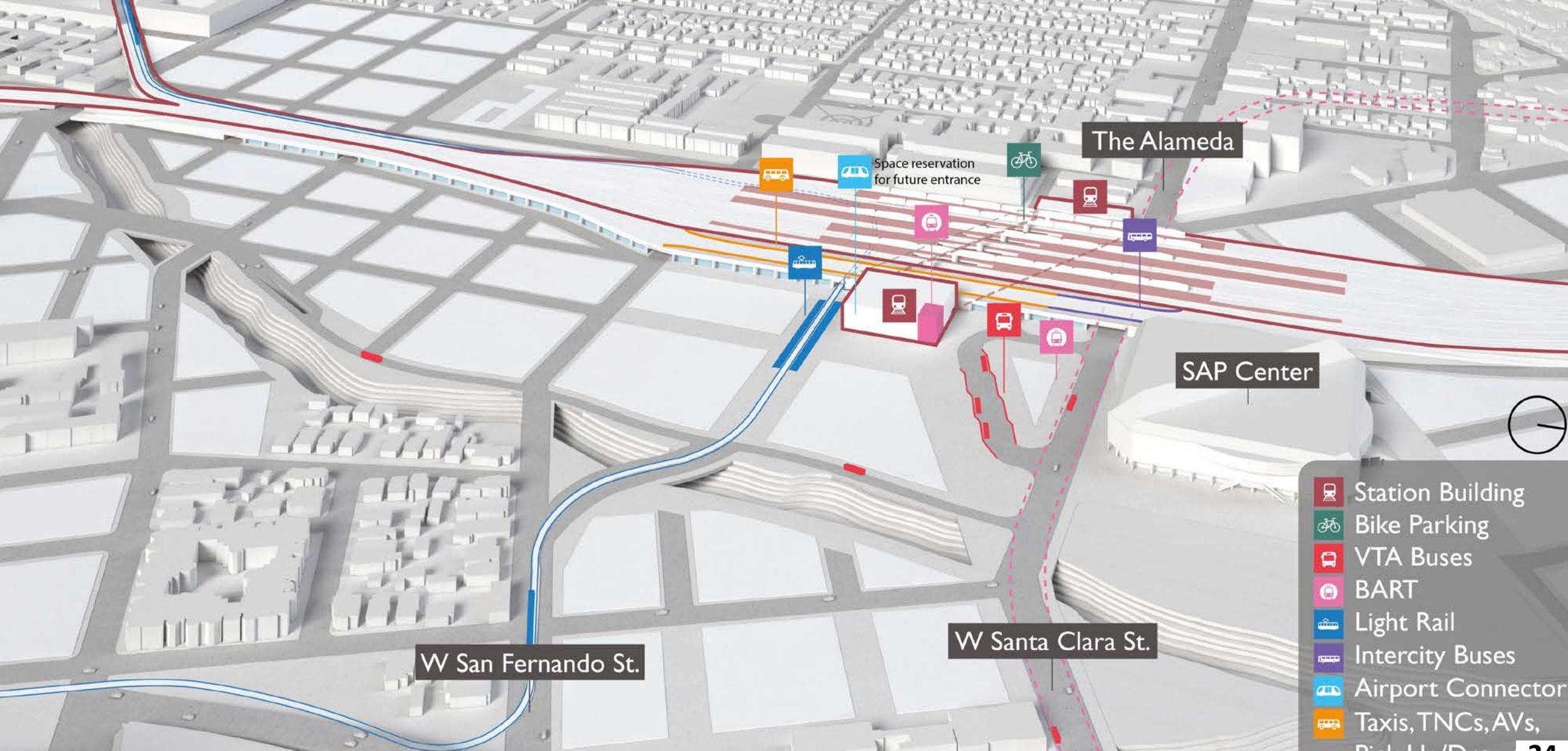
SAN FERNANDO

LOS GATOS CREEK

BART TUNNEL

PARK

# ELEVATED: STOVER – ALL ACCESS MODES



The Alameda

SAP Center

W San Fernando St.

W Santa Clara St.

Space reservation for future entrance

-  Station Building
-  Bike Parking
-  VTA Buses
-  BART
-  Light Rail
-  Intercity Buses
-  Airport Connector
-  Taxis, TNCs, AVs, Pick Up/Drop

*The urban street grid is for illustrative purposes only.*

**IN PROGRESS: OPTIMIZING LAYOUTS**

*The following slides provide a summary of the feedback that the Partner Agencies received in June 2019. This has been used to refine the ideas for Layouts.*

## The Process

- Partner agencies evaluate layouts
- Incorporate public input into mixing and matching
- Identify opportunities for mixing and matching
- Seek additional public feedback
- Develop a single complete layout
- Present to the partner agency policy boards

## What We Learned

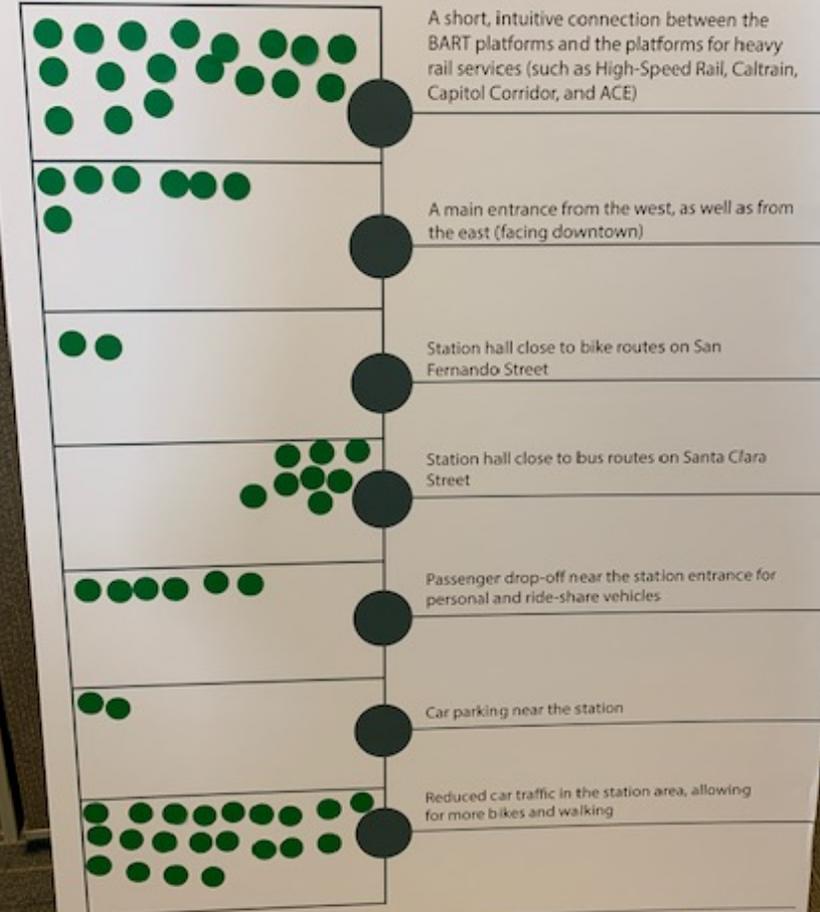
### Top Priority

Easy, well-timed connections between modes – particularly a short, direct, and intuitive connection between BART and the heavy rail services

### What are your Access-Related Priorities?

When thinking about the future station, what are the most important things from this list?

Place a dot next to your top 3 priorities



## What We Learned

### General Community Aspirations

- Improved transit serving the station
- A highly visible and iconic station
- Spaces to gather
- Reduced car traffic
- Improved station access by foot or bike
- Central car drop off points
- Efficient use of land

### What are your Urban Integration-Related Priorities?

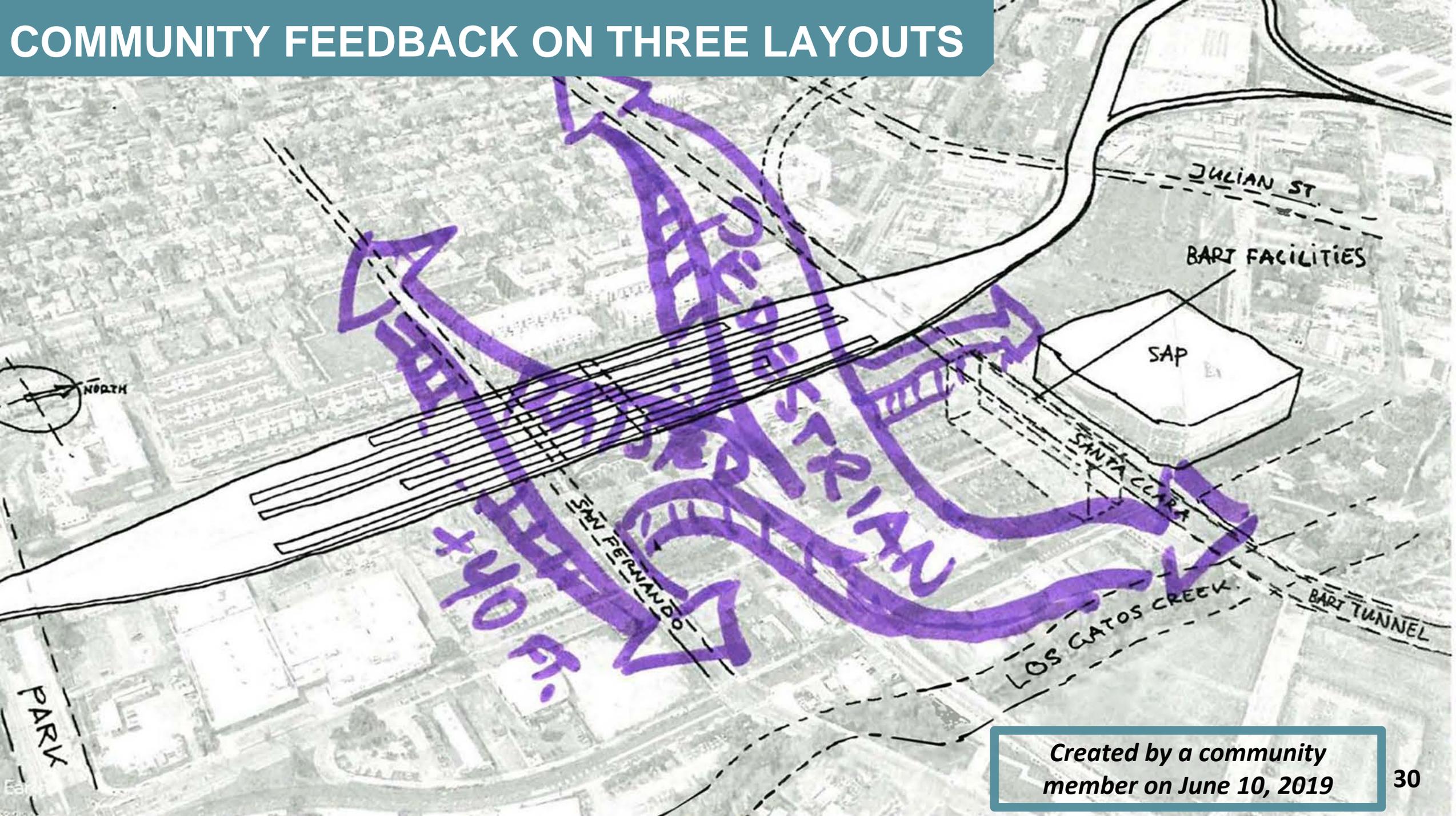
When thinking about the future station, what are the most important things from this list?

Place a dot next to your top 3 priorities

*Handwritten note: I would like to see more people moved to the station area*

|  |                                     |   |
|--|-------------------------------------|---|
|  | <input checked="" type="checkbox"/> | A highly visible and iconic station   |
|  | <input type="checkbox"/>            | Proximity to venues and shopping on Santa Clara Street  |
|  | <input checked="" type="checkbox"/> | A variety of gathering spaces and activities inside and outside of the station hall             |
|  | <input checked="" type="checkbox"/> | A pedestrian plaza near the station entrance  |
|  | <input type="checkbox"/>            | More trails running through the station area  |
|  | <input checked="" type="checkbox"/> | The ability to walk from one side of the tracks to the other without going through an underpass |
|  | <input type="checkbox"/>            | More vibrancy and activity along Santa Clara Street   |
|  | <input type="checkbox"/>            | More vibrancy and activity along San Fernando Street  |

# COMMUNITY FEEDBACK ON THREE LAYOUTS



*Created by a community member on June 10, 2019*

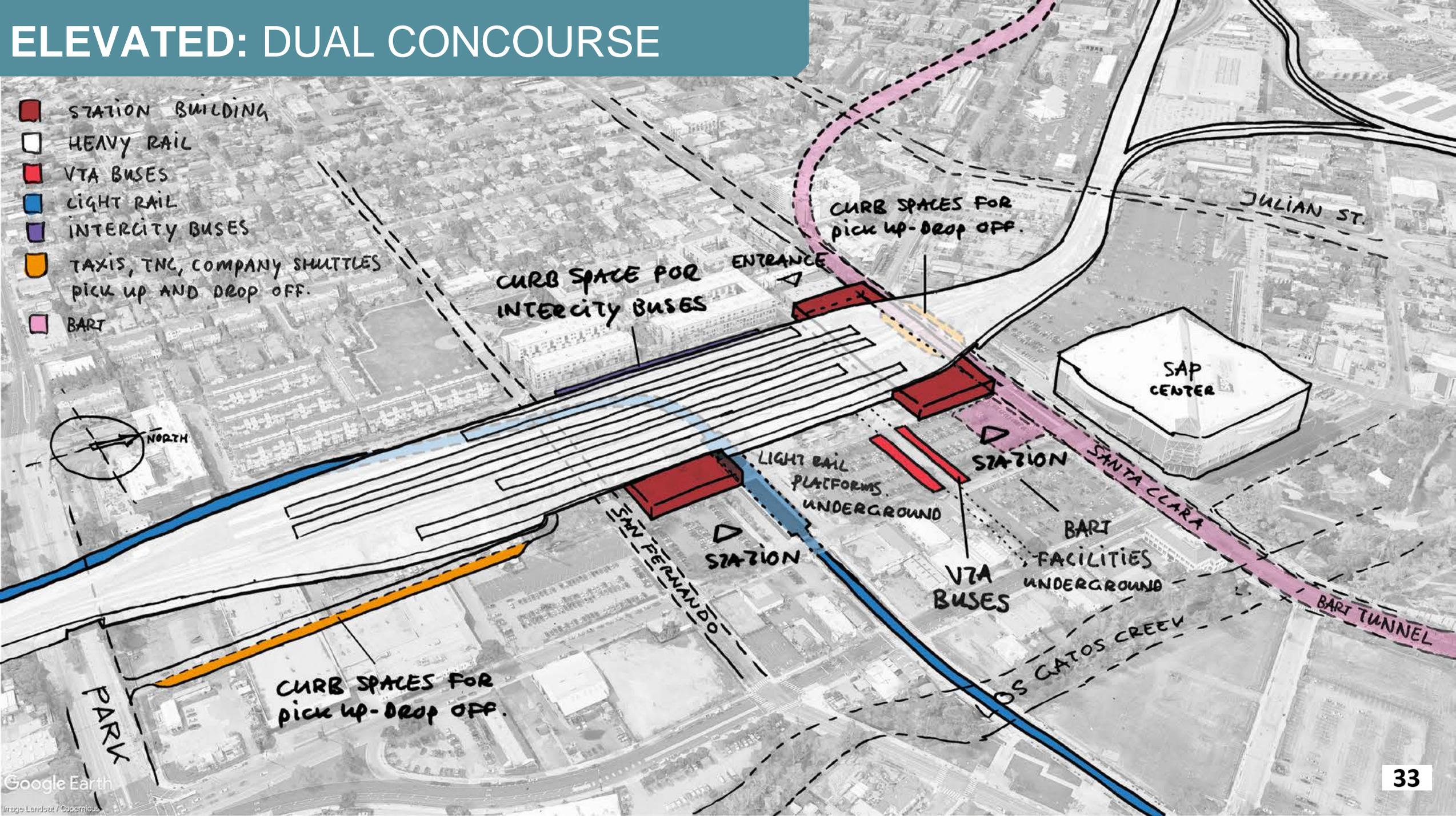
## Community Questions & Comments

- Increased train volumes related to potential property impacts and circulation/safety concerns with at-grade crossings
- Station-adjacent parking, noise, visual impacts, and potential disruption to nearby neighborhoods resulting from construction and increased activity
- Displacement of nearby residents
- Community members frequently ask about the High-Speed Rail project, parking, the historic depot, the Google project, and a direct airport connection.

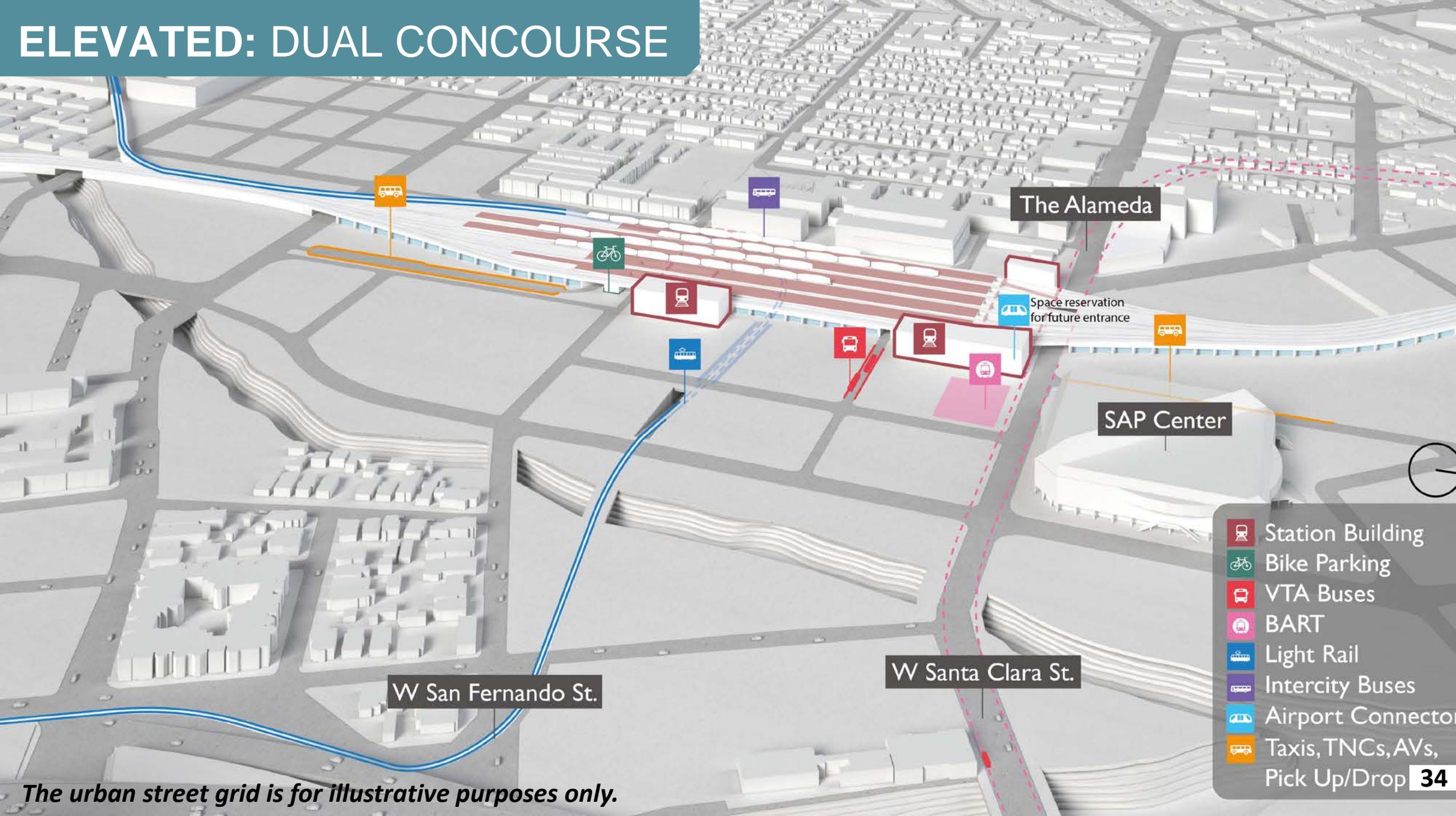
*Using the community feedback combined with the Partner Agency process of refinement, a new idea for a fourth Layout emerged and is presented on the following slides. This is called the “Elevated Dual Concourse Layout”.*

# ELEVATED: DUAL CONCOURSE

- STATION BUILDING
- HEAVY RAIL
- VTA BUSES
- LIGHT RAIL
- INTERCITY BUSES
- TAXIS, TNC, COMPANY SHUTTLES PICK UP AND DROP OFF.
- BART



# ELEVATED: DUAL CONCOURSE



The Alameda

SAP Center

W San Fernando St.

W Santa Clara St.

Space reservation for future entrance

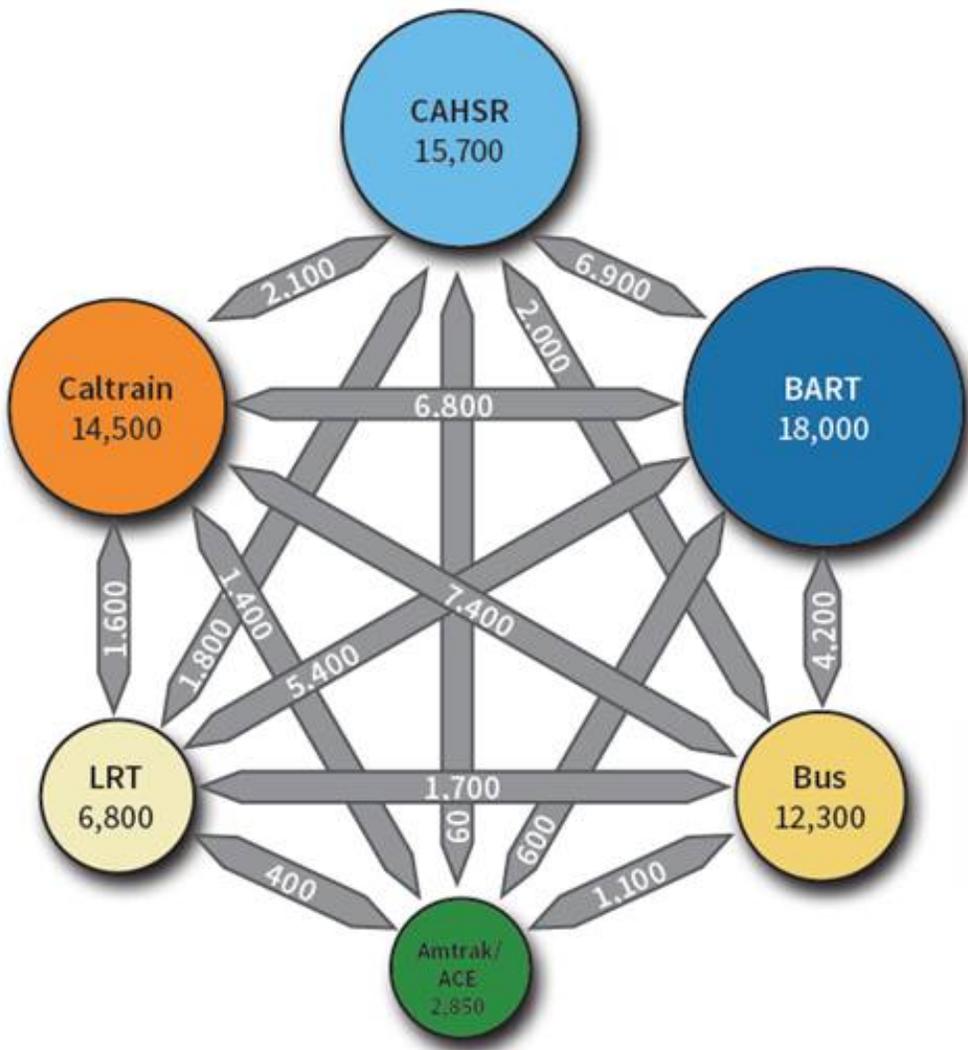
- Station Building
- Bike Parking
- VTA Buses
- BART
- Light Rail
- Intercity Buses
- Airport Connector
- Taxis, TNCs, AVs, Pick Up/Drop

*The urban street grid is for illustrative purposes only.*

# COMPARING FOUR STATION LAYOUTS

|                                   | <b>Layout 1:<br/>San Fernando St.</b> | <b>Layout 2:<br/>Santa Clara St.</b> | <b>Layout 3:<br/>Stover St.</b>                | <b>Layout 4:<br/>Dual Concourse</b>              |
|-----------------------------------|---------------------------------------|--------------------------------------|--|--|
| <b>Vertical Platform Position</b> | At Grade                              | Elevated                             | Elevated                                       | Elevated   |
| <b>North Alignment</b>            | Existing corridor                     | Northern corridor                    | Northern corridor                              | Existing Corridor                                |
| <b>South Alignment</b>            | Existing corridor                     | I-280 & existing                     | Existing corridor                              | Existing Corridor                                |
| <b>Concourse</b>                  | In tunnel                             | At grade                             | At grade                                       | At grade   |
| <b>City Bus</b>                   | On platforms on Cahill St.            | Under building at Autumn St.         | Under tracks and building at W Santa Clara St. | Under tracks in the street network               |
| <b>Intercity buses</b>            |                                       |                                      |  | At curb on White St                              |
| <b>Taxis</b>                      |                                       | At curbs on Autumn St                | On flyover in between San Carlos / Julian      | At curb on Santa Clara St and south of Cahill St |
| <b>TNC and AV</b>                 |                                       |                                      |  |  |
| <b>Pick up/drop off</b>           |                                       |                                      |  |  |

# COMPARING LAYOUTS: Transfer Volumes



This graphic presents the forecasted mode-to-mode transfer volumes for Diridon Station in 2040. This data helps the Partner Agencies to plan the needed space for the Station.

Note: 2040 forecasted daily boardings is 140,000



Note: Daily transit transfers show sum of passenger flows in both directions; daily boardings show total boardings for all transit and non-transit modes

# COMPARING LAYOUTS: Transfer Times

| Mode To Mode          | Layout 1:<br>San Fernando | Layout 2:<br>Santa Clara | Layout 3:<br>Stover | Layout 4:<br>Dual<br>Concourse |
|-----------------------|---------------------------|--------------------------|---------------------|--------------------------------|
| Heavy Rail to BART    | 7 – 9                     | 4 – 6                    | 4 – 6               | 4 – 6                          |
| Light Rail to BART    | 6 - 8                     | 6 - 8                    | 3 - 5               | 6 - 8                          |
| VTA Bus to BART       | 5 - 7                     | 2 - 4                    | 3 - 5               | 2 - 5                          |
| Heavy Rail to VTA Bus | 2 - 4                     | 4 - 6                    | 3 - 5               | 4 - 6                          |

*Note: Walk Time In Minutes. Walking speed used is 4 feet per second.*

This presents conceptual planning-level walking times between the modes for all four layouts. This helps the Partner Agencies in thinking about organizing the space at the Station to best meet the objective of integrated, easy to use, and well timed transit connections

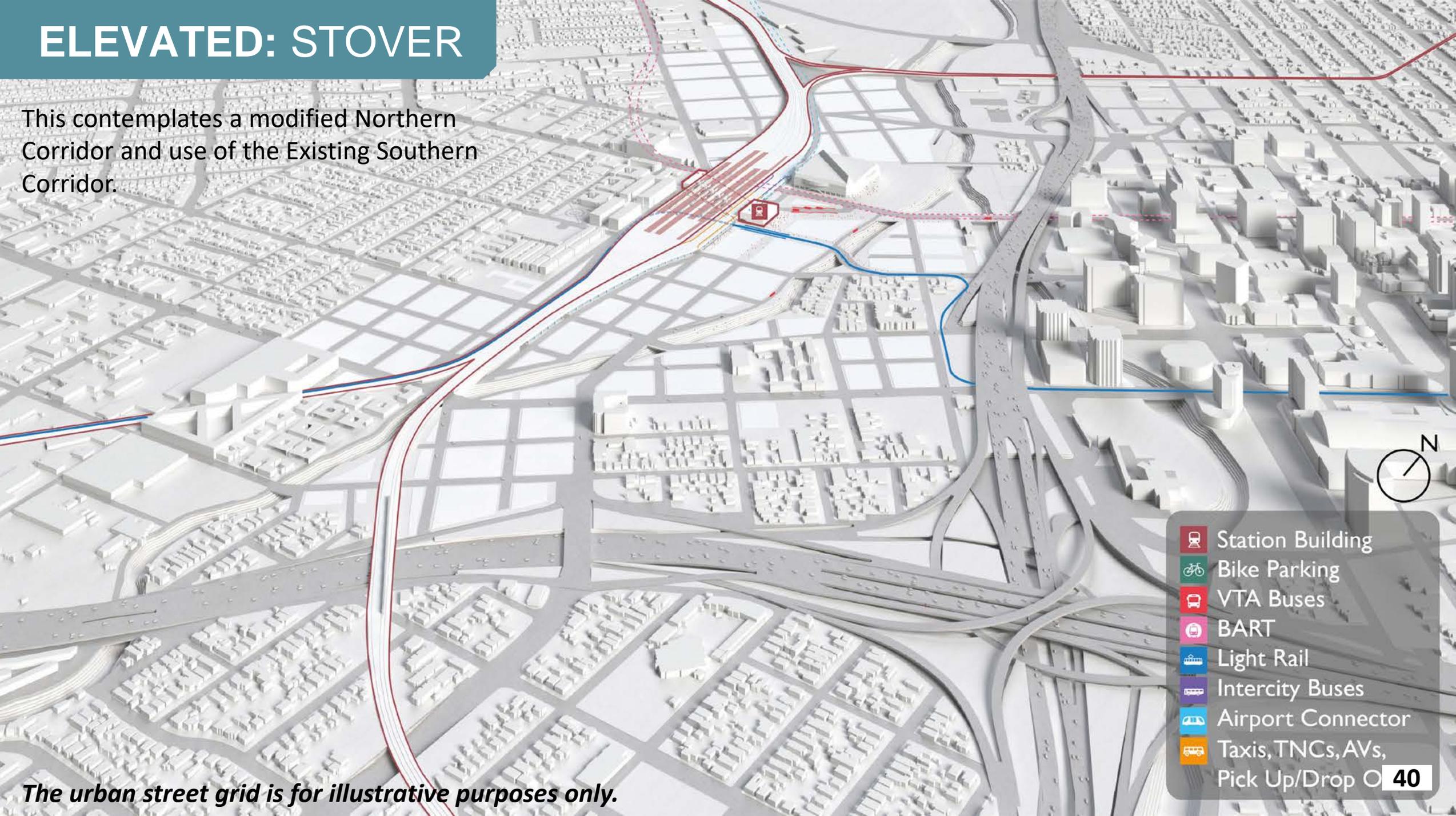
# **INVESTIGATING THE BIG RAIL MOVES**

*The Partner Agencies, with their consultant team ABC, have explored various ideas for the Big Moves, including ideas that would address a key goal of the Concept Plan for Future-proofing.*

*Please note that the designs presented here were done by Team ABC and are conceptual.*

# ELEVATED: STOVER

This contemplates a modified Northern Corridor and use of the Existing Southern Corridor.



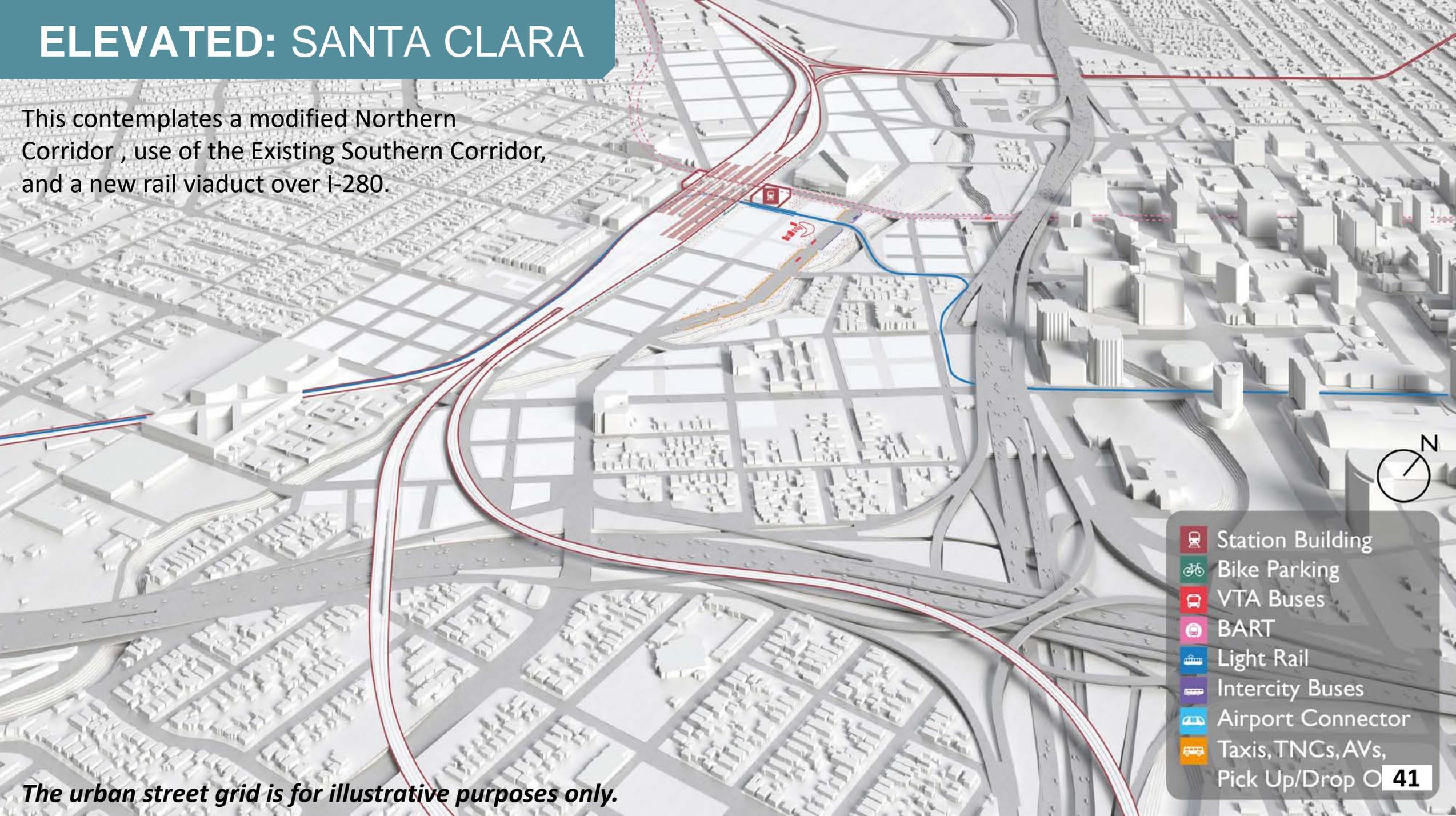
*The urban street grid is for illustrative purposes only.*

-  Station Building
-  Bike Parking
-  VTA Buses
-  BART
-  Light Rail
-  Intercity Buses
-  Airport Connector
-  Taxis, TNCs, AVs, Pick Up/Drop Off

40

# ELEVATED: SANTA CLARA

This contemplates a modified Northern Corridor, use of the Existing Southern Corridor, and a new rail viaduct over I-280.



*The urban street grid is for illustrative purposes only.*

-  Station Building
-  Bike Parking
-  VTA Buses
-  BART
-  Light Rail
-  Intercity Buses
-  Airport Connector
-  Taxis, TNCs, AVs, Pick Up/Drop Off

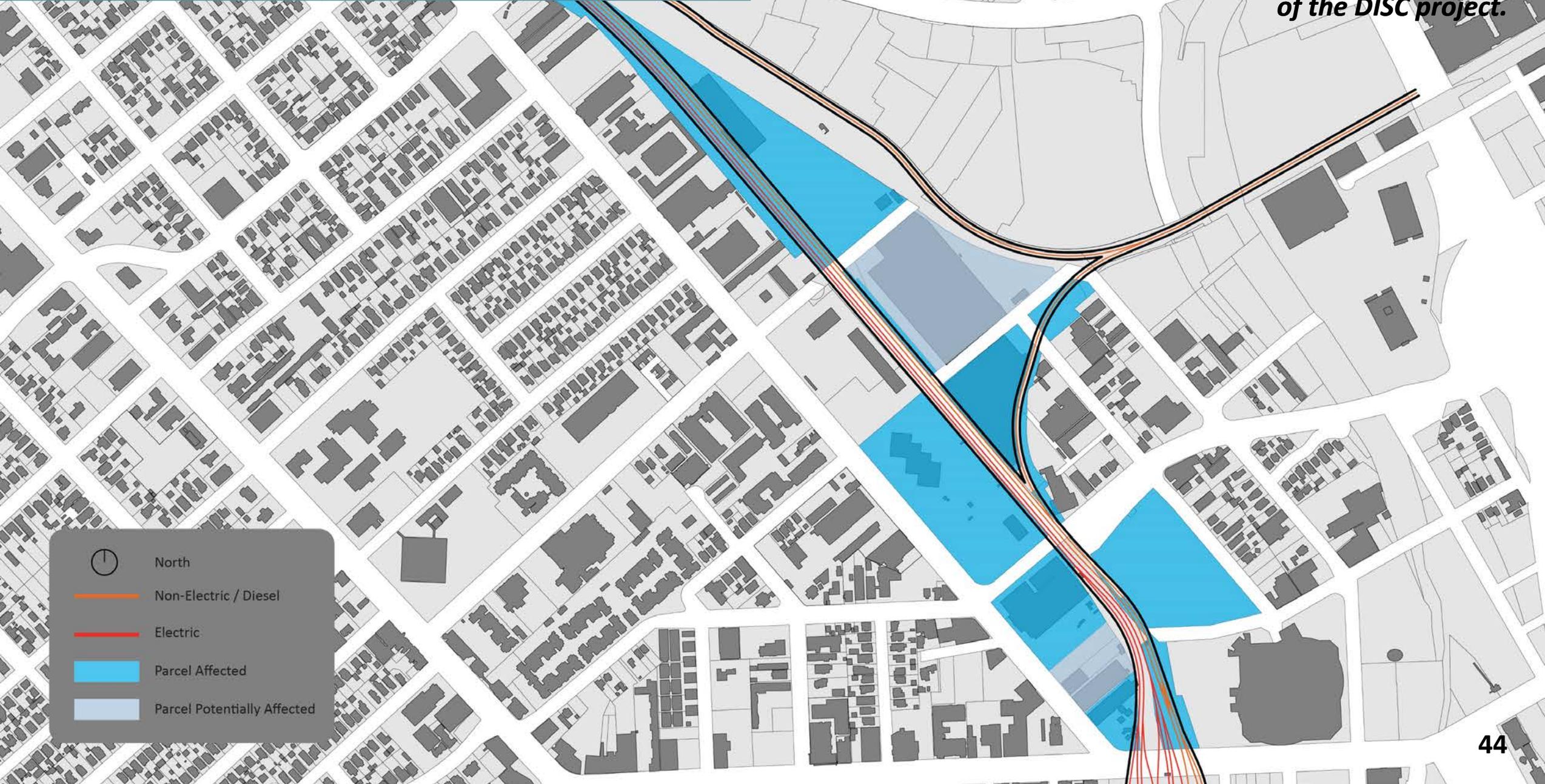
**FUTURE-PROOFING  
THE RAIL CORRIDOR**

*The following slides contemplate how best to future-proof the Northern and Southern Rail Alignments by examining the potential minimum or maximum effects to adjacent parcels.*

*The following images show the outline of the entire parcel; however, the effect could be on all or part of the parcel, only a sliver, or to a driveway. The intent is to help the Partner Agencies examine the relative trade-off's between different corridor options.*

# RAIL CORRIDOR NORTH: MINIMUM

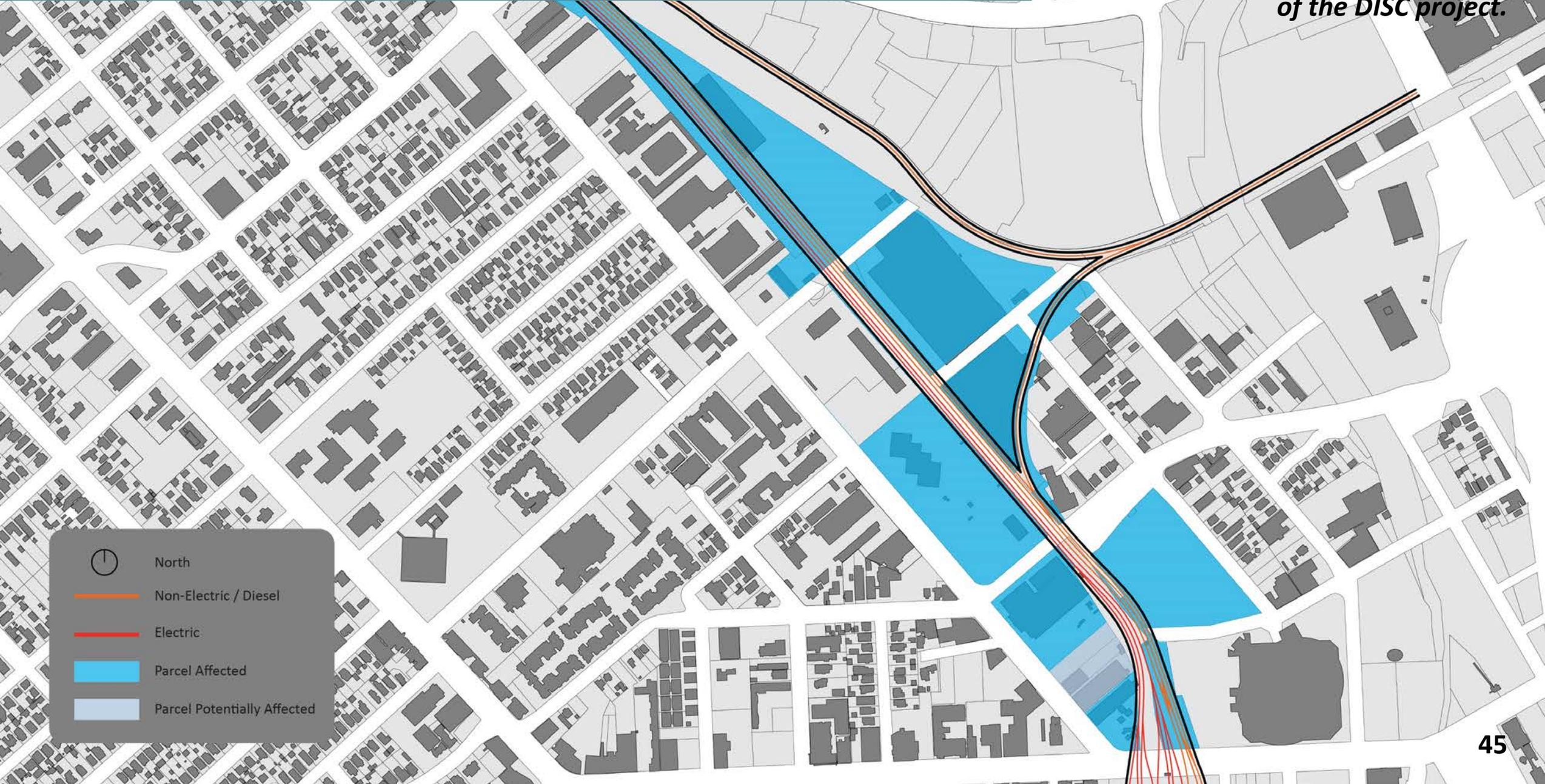
*This design was completed by Arcadis for the purposes of the DISC project.*

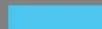


-  North
-  Non-Electric / Diesel
-  Electric
-  Parcel Affected
-  Parcel Potentially Affected

# RAIL CORRIDOR NORTH: MAXIMUM ON EXISTING

*This design was completed by Arcadis for the purposes of the DISC project.*



-  North
-  Non-Electric / Diesel
-  Electric
-  Parcel Affected
-  Parcel Potentially Affected

# RAIL CORRIDOR NORTH: MAXIMUM

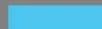
*This design was completed by Arcadis for the purposes of the DISC project.*



# RAIL CORRIDOR SOUTH: MINIMUM

*This design was completed by Arcadis for the purposes of the DISC project. This contemplates if three tracks were built.*



-  North
-  Non-Electric / Diesel
-  Electric
-  Parcel Affected
-  Parcel Potentially Affected

# RAIL CORRIDOR SOUTH: MAXIMUM

*This design was completed by Arcadis for the purposes of the DISC project. This contemplates if 4 tracks were built.*

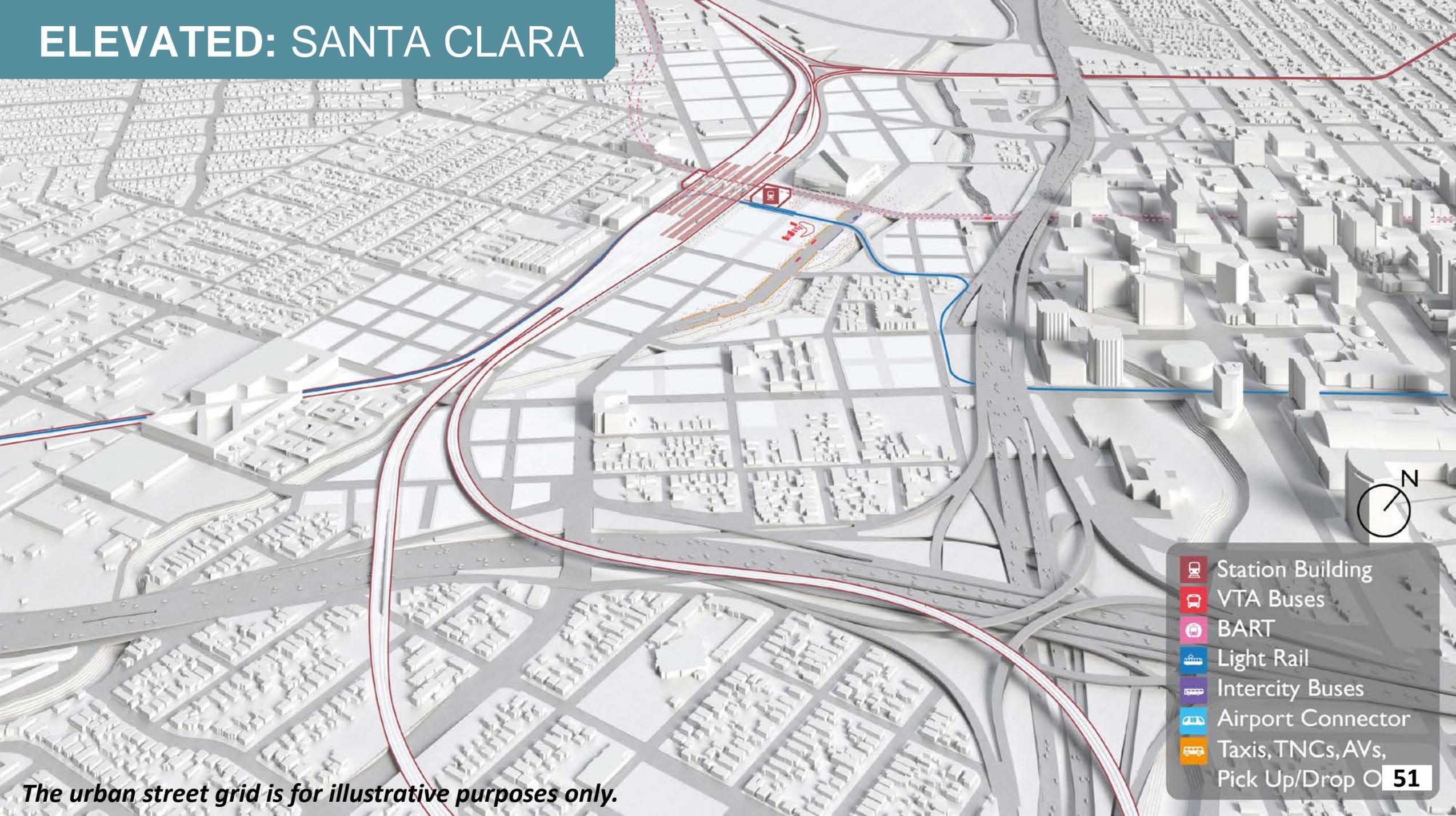


-  North
-  Non-Electric / Diesel
-  Electric
-  Parcel Affected
-  Parcel Potentially Affected

**CONSIDERING AN I280 VIADUCT**

*Team ABC and the Partner Agencies explored many considerations for a new rail viaduct over the I-280 280 in response to community-driven ideas for reducing trains through the existing corridor . The following slides show the work completed to arrive at an option for a new rail viaduct that would be viable from a rail operator perspective.*

# ELEVATED: SANTA CLARA

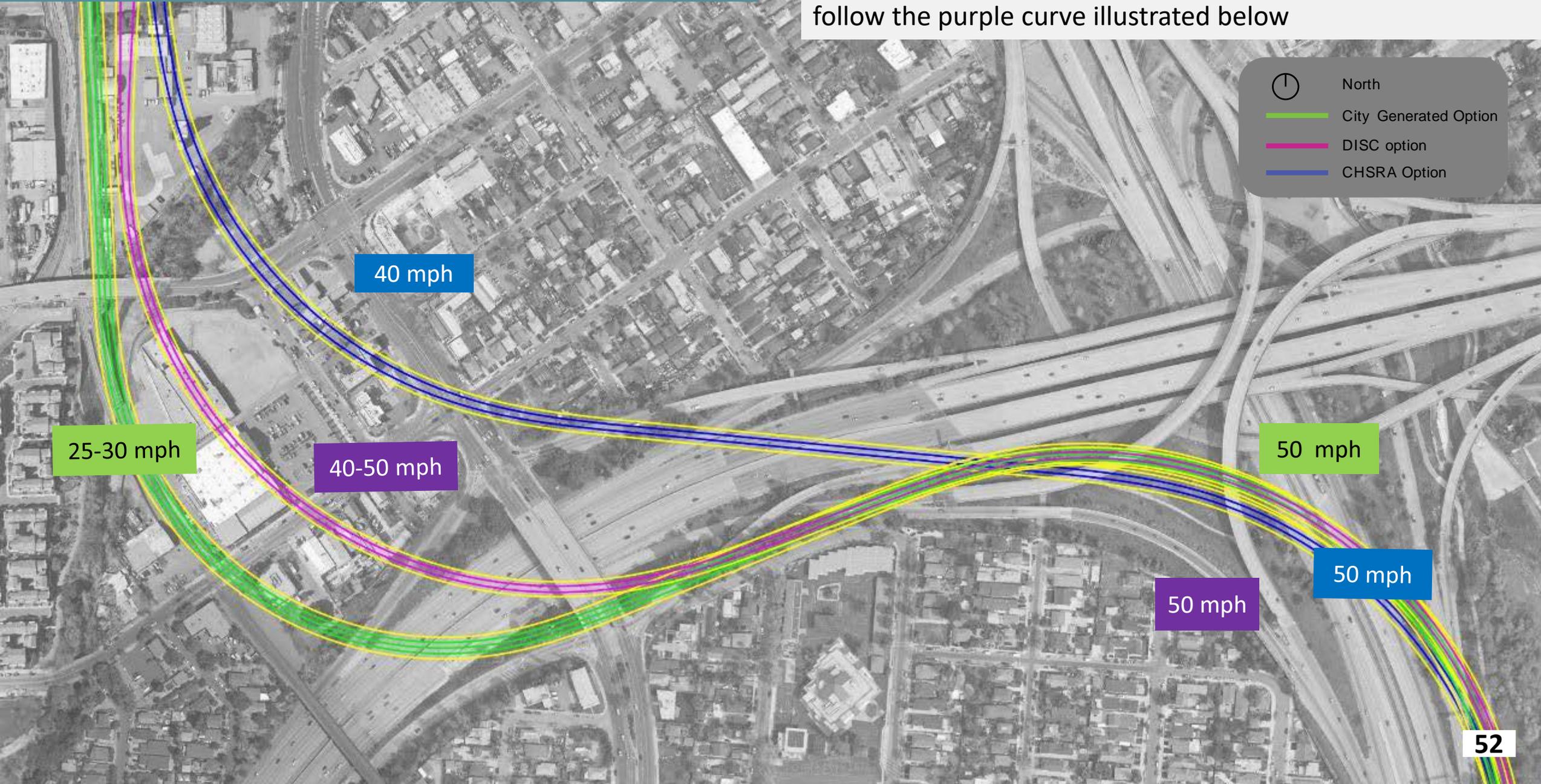


*The urban street grid is for illustrative purposes only.*

-  Station Building
-  VTA Buses
-  BART
-  Light Rail
-  Intercity Buses
-  Airport Connector
-  Taxis, TNCs, AVs,  
Pick Up/Drop

# POSSIBLE I280 PASSAGES

We examined three possible passages for a new I280 alignment and generated a scenario in which trains would follow the purple curve illustrated below





*With the 280 viaduct option, a flyover is needed to get the electrified rail lines lined up correctly at the station and to cross over the existing diesel tracks used by freight trains. This flyover would have to occur to the north (over the Warm Springs freight line) or to the south (over the Vasona freight line). The following slides illustrate the various options for a new fly-over that would enable the I-280 viaduct.*

# FLYOVER NORTHERN CORRIDOR OPTION 1

This option allows for both Caltrain and CHSRA to use the I-280 Guideway, but this would require Tamien Station to become elevated

## Platforms:

CHSRA Platforms are between the Caltrain platforms

Non-electric trains are now on the west side of the station

**Northern Flyover:**  
Electrified trains go over the diesel tracks



A legend box in the bottom right corner. It contains a north arrow symbol, a legend for track colors: orange for 'UP, CC, ACE, Amtrak', red for 'Caltrain', and blue for 'CHSRA'. The number '55' is in the bottom right corner of the legend box.

|   |                     |
|---|---------------------|
|  | North               |
|  | UP, CC, ACE, Amtrak |
|  | Caltrain            |
|  | CHSRA               |

55

*The urban street grid is for illustrative purposes only.*

# FLYOVER NORTHERN CORRIDOR OPTION 2

This option allows CHSRA to use the I-280 Guideway, resulting in no modifications to Tamien Station

## Platforms:

CHSRA Platforms are on the east side  
This allows for a smaller guideway structure south

**Northern Flyover:**  
Electrified trains go over the diesel tracks

- ⊖ North
- UP, CC, ACE, Amtrak
- Caltrain
- CHSRA

*The urban street grid is for illustrative purposes only.*

# FLYOVER SOUTHERN CORRIDOR

This option allows CHSRA to use the I-280 Guideway  
Caltrain and the non-electric operators utilize the Existing Southern Corridor  
resulting in no modifications to Tamien Station

**Southern Flyover:**  
Electrified trains go over  
the diesel tracks



North

UP, CC, ACE, Amtrak

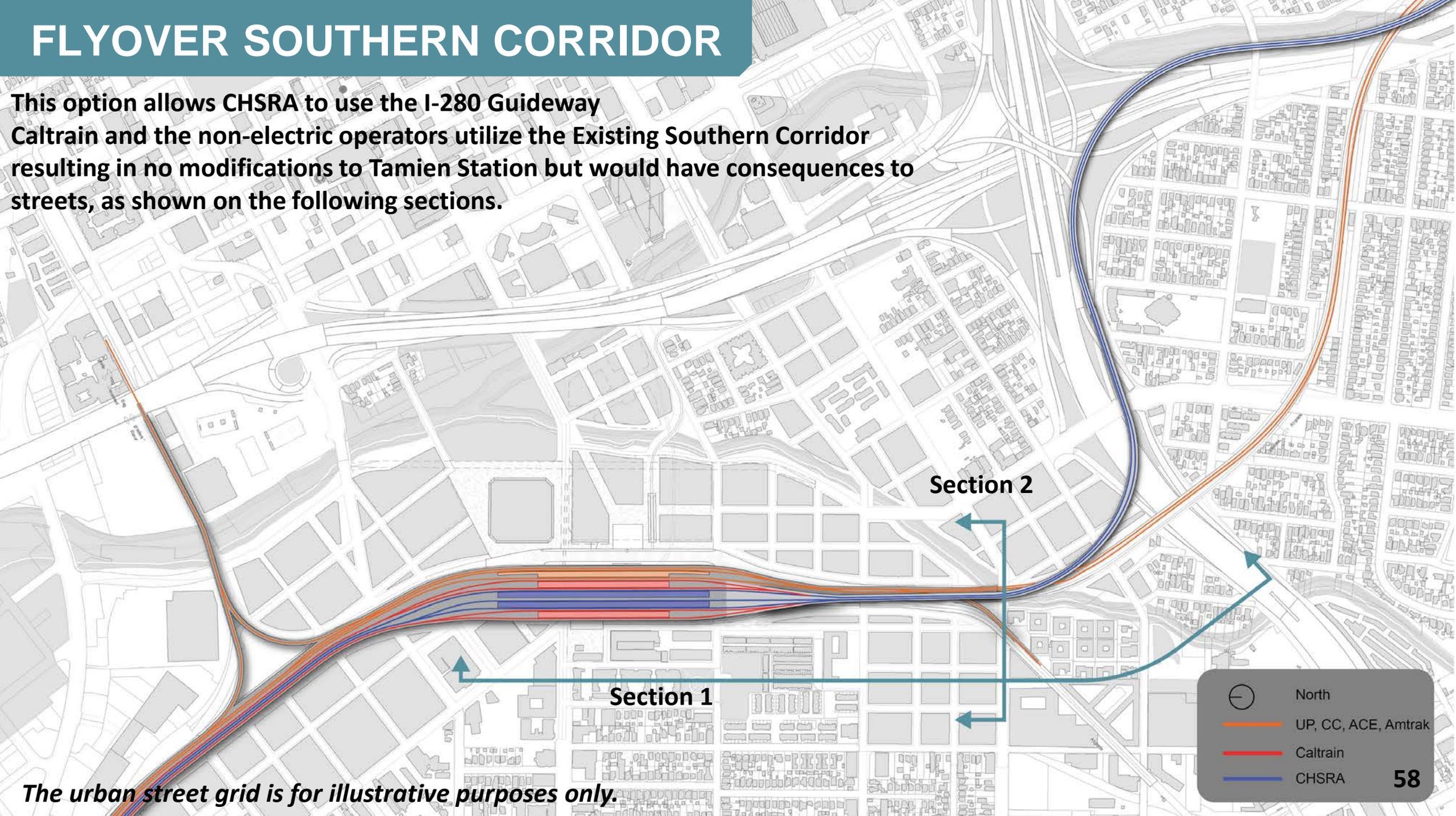
Caltrain

CHSRA

*The urban street grid is for illustrative purposes only.*

# FLYOVER SOUTHERN CORRIDOR

This option allows CHSRA to use the I-280 Guideway  
Caltrain and the non-electric operators utilize the Existing Southern Corridor  
resulting in no modifications to Tamien Station but would have consequences to  
streets, as shown on the following sections.



Section 2

Section 1

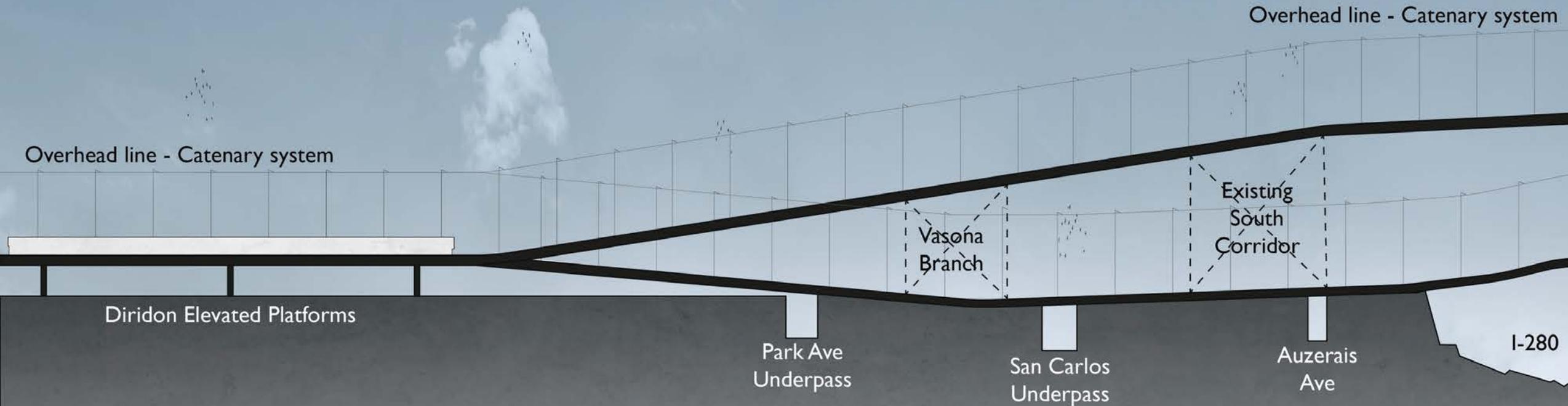
North

- UP, CC, ACE, Amtrak
- Caltrain
- CHSRA

58

*The urban street grid is for illustrative purposes only.*

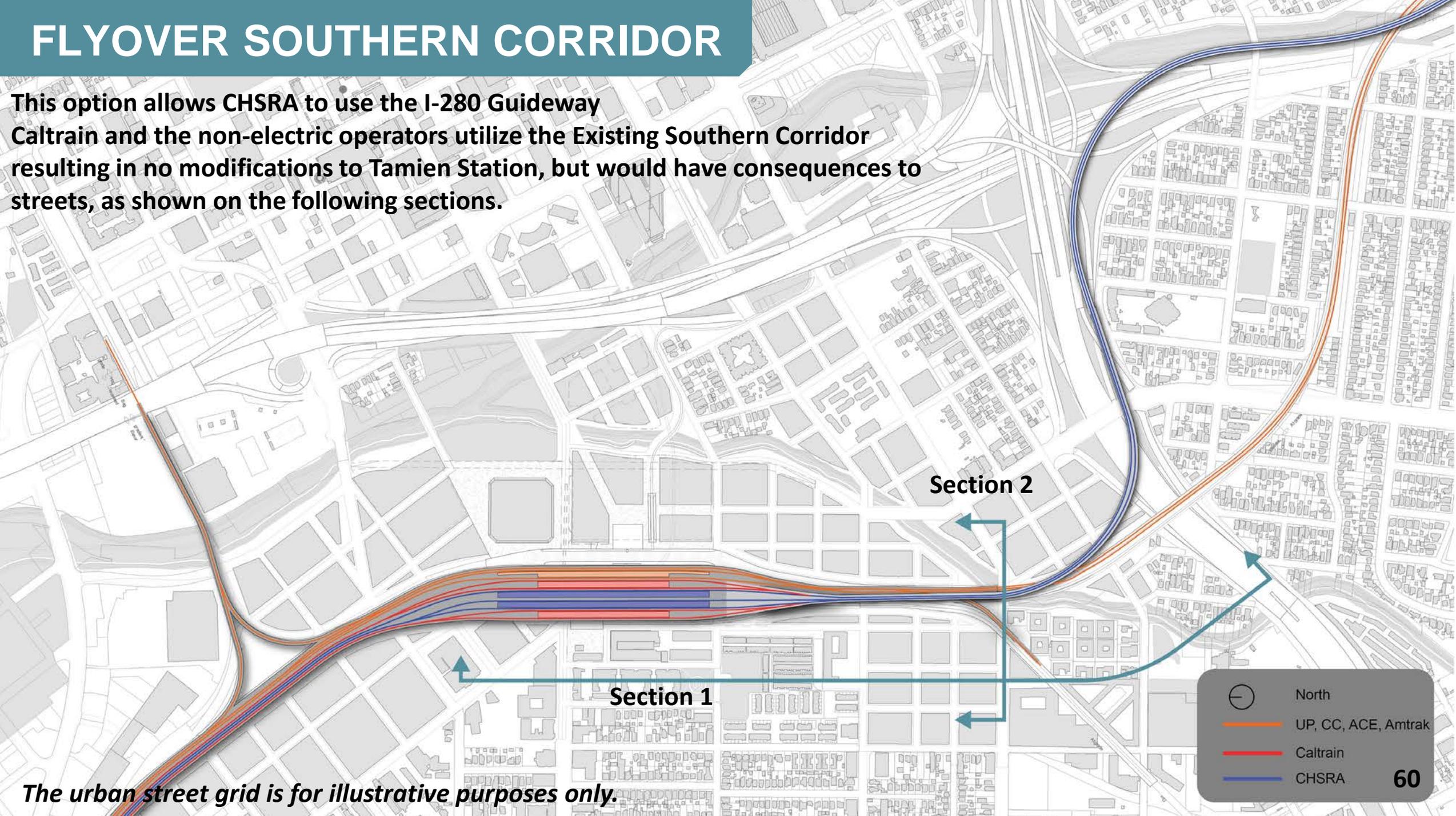
# FLYOVER SOUTHERN CORRIDOR – SECTION 1



*Longitudinal section has been compressed to demonstrate full length*

# FLYOVER SOUTHERN CORRIDOR

This option allows CHSRA to use the I-280 Guideway  
Caltrain and the non-electric operators utilize the Existing Southern Corridor  
resulting in no modifications to Tamien Station, but would have consequences to  
streets, as shown on the following sections.



Section 2

Section 1

North

UP, CC, ACE, Amtrak

Caltrain

CHSRA

60

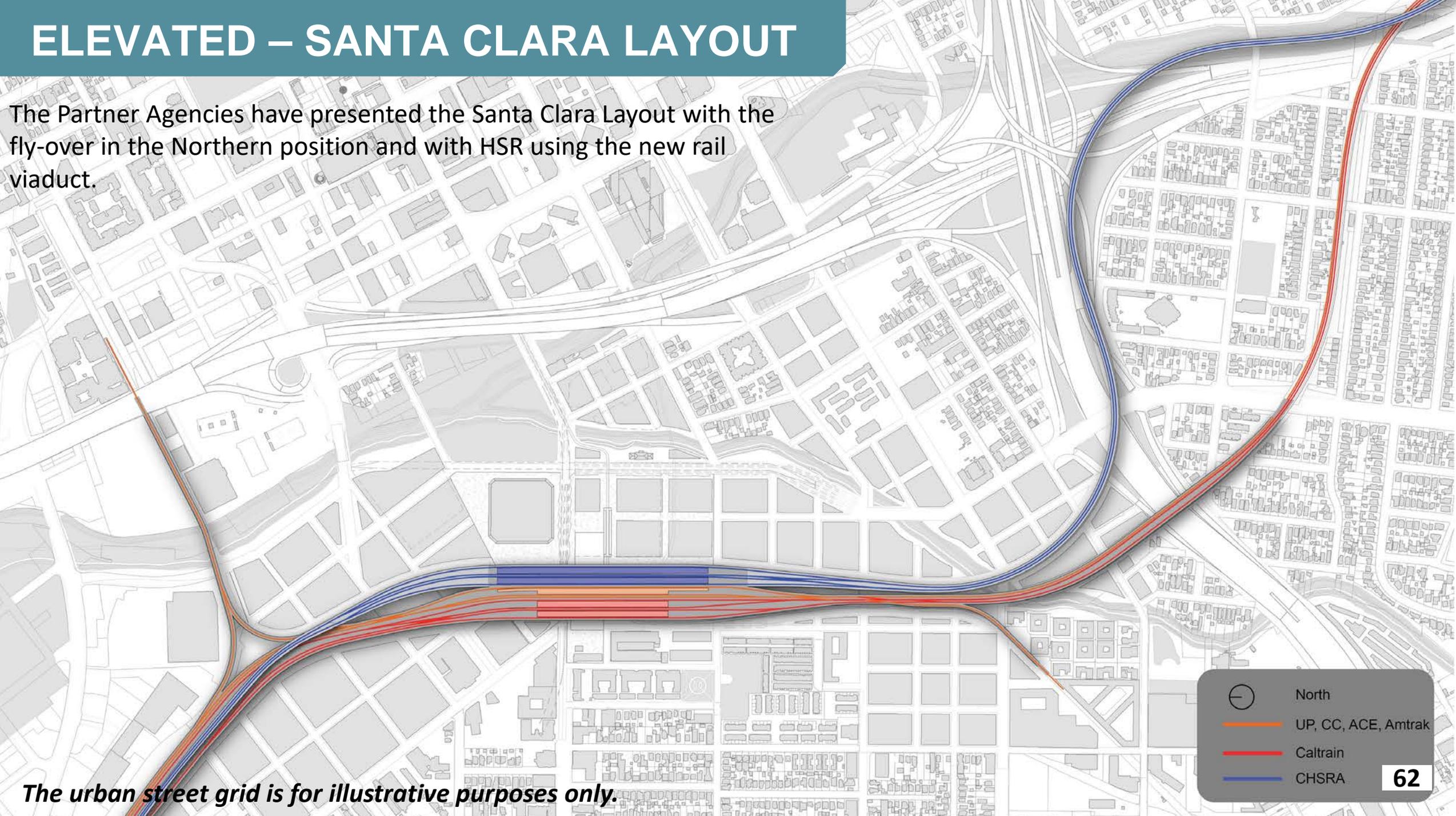
*The urban street grid is for illustrative purposes only.*

# FLYOVER SOUTHERN CORRIDOR – SECTION 2



# ELEVATED – SANTA CLARA LAYOUT

The Partner Agencies have presented the Santa Clara Layout with the fly-over in the Northern position and with HSR using the new rail viaduct.



*The urban street grid is for illustrative purposes only.*



North

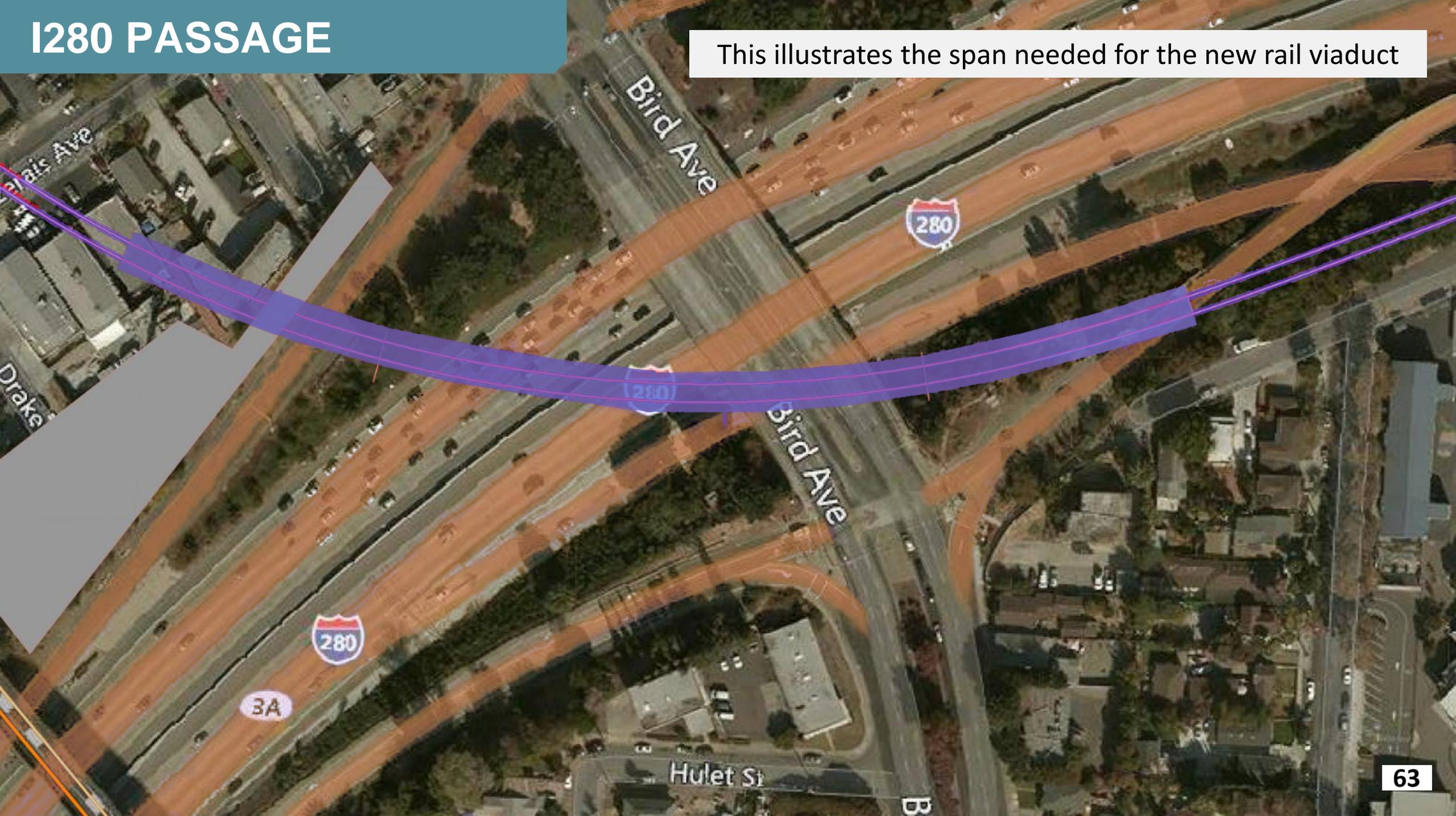
UP, CC, ACE, Amtrak

Caltrain

CHSRA

# I280 PASSAGE

This illustrates the span needed for the new rail viaduct



This is a photo of a similar type of viaduct from a similar transit project in the Netherlands



**AT-GRADE RAIL CORRIDOR  
BEST PRACTICES**

*The project team was asked to explore potential enhancements to the existing corridor since not all trains could or would use a new rail viaduct. The following slides present best practices in the U.S and internally. There are physical treatments (i.e., walls or vegetation) as well as modern rail technology that could be used to reduce adverse effects on surrounding communities from rail infrastructure and train operations. These demonstrate the initial ideas thus far.*

# SOUND & VISIBILITY



# SOUND & VISIBILITY



# SOUND & VISIBILITY



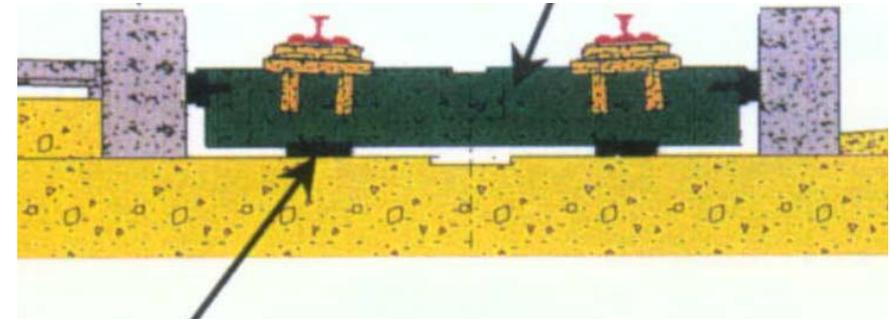
# SOUND & VISIBILITY



# SOUND & VISIBILITY – RAIL TECHNOLOGY



# SOUND & VISIBILITY RAIL TECHNOLOGY



Rubber Bearing

# **BENEFITS & TRADE-OFFS**

# Neighborhoods Affected by Existing Southern Corridor

This slide highlights the neighborhoods that would experience effects if only the existing southern corridor was used.



This map is for discussion purposes only, neighborhood names and boundaries are not firm and are subject to interpretation.

# Neighborhoods Affected by I280 Track Alignment

This slide highlights the neighborhoods that would experience effects if an I280 rail viaduct was built in addition to using the existing southern corridor.



— Tracks  
— Station Hall  
□ Neighborhood  
□ Impacted Neighborhood

This map is for discussion purposes only, neighborhood names and boundaries are not firm and are subject to interpretation.

75

# Illinois Avenue Looking North

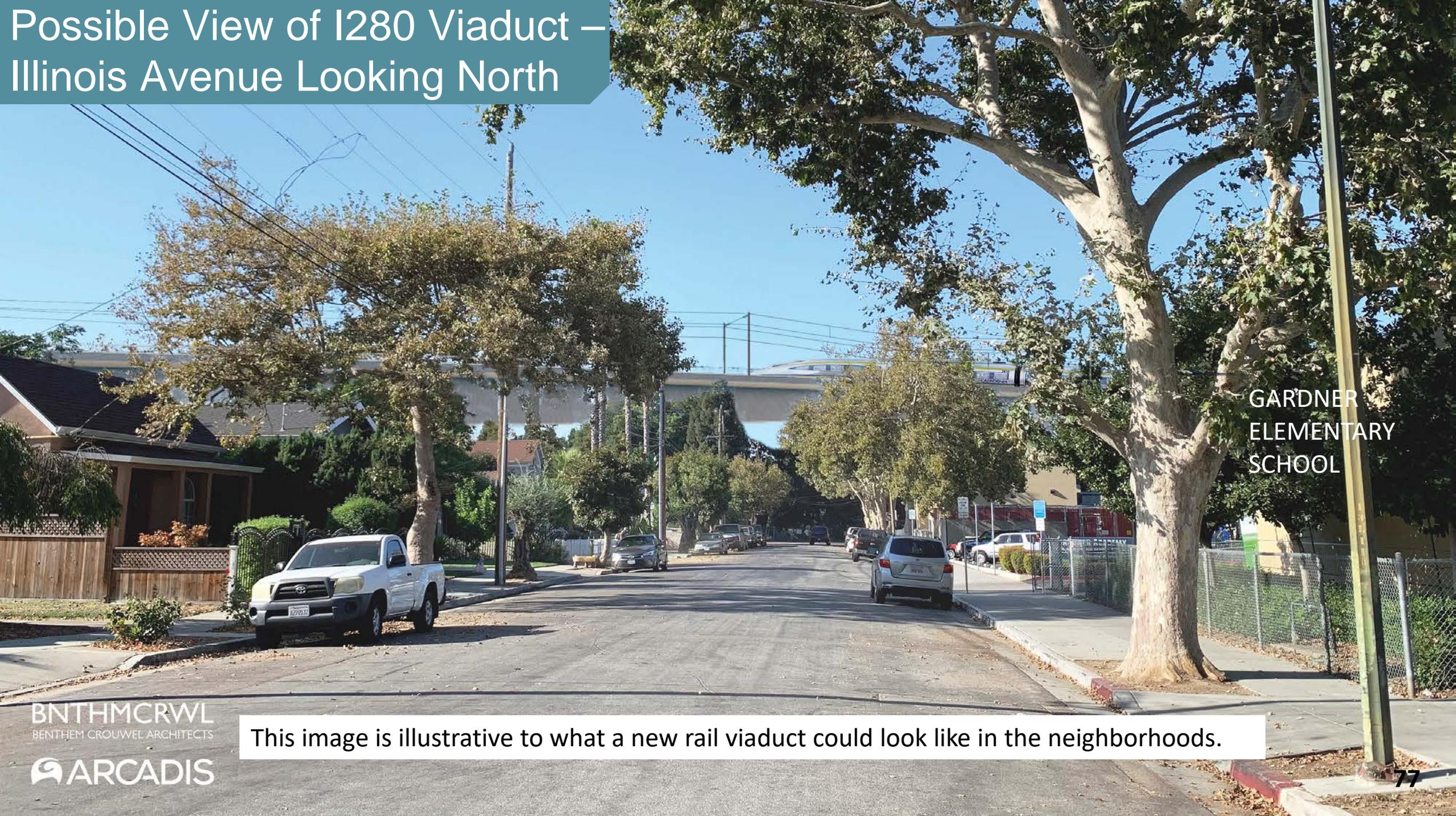


GARDNER  
ELEMENTARY  
SCHOOL

BNTHMCRWL  
BENTHEM CROUWEL ARCHITECTS

ARCADIS

# Possible View of I280 Viaduct – Illinois Avenue Looking North



GARDNER  
ELEMENTARY  
SCHOOL

This image is illustrative to what a new rail viaduct could look like in the neighborhoods.

# Corner of Brown & Willis Street Looking North

GARDNER  
ELEMENTARY  
SCHOOL



BNTHMCRWL  
BENTHEM CROUWEL ARCHITECTS

ARCADIS

# Possible View of I280 Viaduct – Corner of Brown & Willis Street Looking North

GARDNER  
ELEMENTARY  
SCHOOL



BNTHMCRWL  
BENTHEM CROUWEL ARCHITECTS

ARCADIS

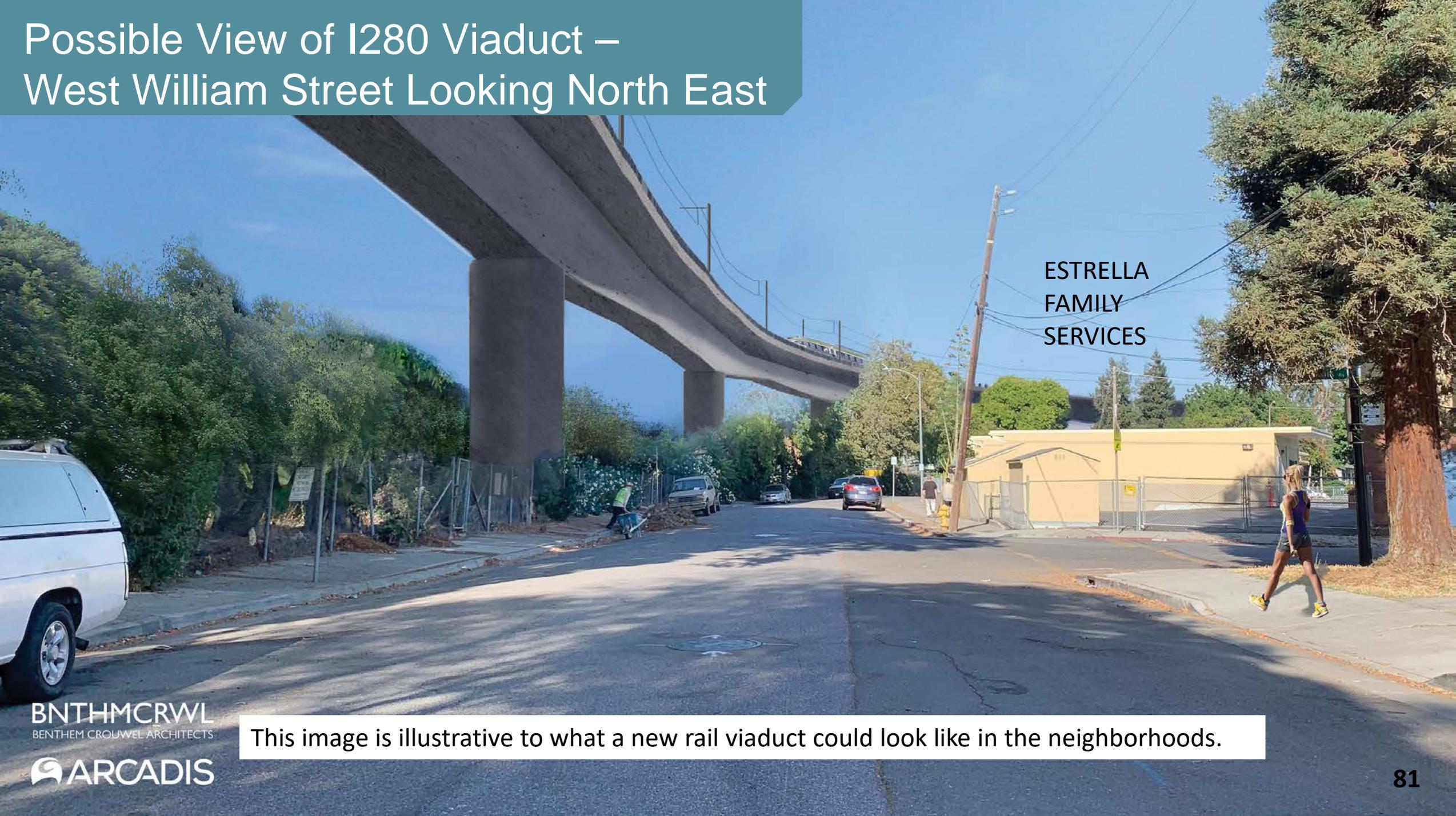
This image is illustrative to what a new rail viaduct could look like in the neighborhoods.

# West William Street Looking North East



ESTRELLA  
FAMILY  
SERVICES

# Possible View of I280 Viaduct – West William Street Looking North East



ESTRELLA  
FAMILY  
SERVICES

BNTHMCRWL  
BENTHEM CROUWEL ARCHITECTS

ARCADIS

This image is illustrative to what a new rail viaduct could look like in the neighborhoods.

**COMMUNITY WORKSHOP:  
Pick a table and join us in conversation**

## Workshop Activity

Pick A Table

- Explore your model
- Join a discussion on benefits and trade-offs

Rotate Every 15 Minutes

## Next Steps

### Draft Vision Community Open House – Fall 2019

- Sharing the draft vision direction designed during the DISC Concept Plan Phase I

### Boards & Council Meetings – Fall 2019

- Sharing the progress made during the DISC Concept Plan Phase I
- Seeking direction on the draft vision

**THANK YOU!**

For more information, visit: [www.diridonsj.org/disc](http://www.diridonsj.org/disc)