

Appendix K: Alternatives Analysis





MEMORANDUM

Date: April 14, 2017

To: Brent Pearse, VTA
Vu Dao, City of San Jose

From: Carrie Modi and Matt Haynes, Fehr & Peers
Thomas Kronemeyer and Deepak Sohane, Community Design + Architecture

Subject: Draft Story-Keys Complete Streets Corridor Study Alternatives Evaluation

OK16-0122

This memorandum presents potential complete streets improvement alternatives for the Story-Keys Corridor Complete Streets Study (the study). The purpose of this memorandum is to obtain initial VTA and City of San José input on the proposed alternatives prior to presenting them at the second Community Forum and Design Workshop in May 2017. This memorandum presents potential proposals and alternatives for the full study corridor between SR 87 and Capitol Expressway. The Story-Keys corridor (the corridor) is divided into three planning areas based on different roadway typologies and spatial opportunities:

- **Story Road, Keyes Street, and Goodyear Street:** The main portion of the corridor, approximately three miles in length.
- **Willow Street and Graham Avenue:** The western section of the corridor, consisting of two travel lanes and approximately one mile in length.
- **US 101 Interchange and SR 87 Underpass:** The approximately 0.25 mile section of Story Road containing multiple on-and off-ramps, forming the interchange with US 101, and the 0.2 miles of Willow Street west of Lick Avenue connecting under SR 87 to the Willow Glen area.

The memo is divided into five sections:



2. **Story Road, Keyes Street, and Goodyear Street Alternatives:** Three alternatives for this portion of the corridor are presented, including an overview of each alternative and evaluation of each alternative's ability to meet the goals of the Study.¹
3. **Willow Streets and Graham Avenue Alternatives:** Two alternatives are presented for the complex intersections on Willow and Graham in addition to other potential spot improvements. Alternatives are evaluated against the goals of the Study.
4. **US 101 Interchange and SR 87 Underpass Improvements:** A set of potential near-term improvements for the US 101 interchange are presented, and two potential long-term alternatives. Improvements for the SR 87 underpass area to better connect the east and west sides of the freeway are presented.
5. **Next Steps:** This section outlines the next steps for technical and community input as well as the envisioned process for selection of a preferred Study alternative.

STORY-KEYES COMPLETE STREETS TOOLKIT

Figure 1 on the following page presents the visual glossary of potential street segment improvements discussed in this memorandum. The segment improvements focus on street cross-section options (e.g., dedicated bus lanes and separated bikeways). Intersection improvement options are included in **Figure 2A**, **Figure 2B**, and **Figure 2C**.

Improvements included in the toolkit were selected from several sources, including:

- Discussions with VTA and City of San José staff, including discussions on the November 2016 walk audits and on the draft alternatives outline submitted to VTA and the City in March 2017.
- Community ideas from the first Community Forum in November 2016.

¹ The Study's primary stated objectives are to: (1) improve the safety, attractiveness, connectivity, and speed of alternative travel options such as public transit, walking, and bicycling for the population in the project area; (2) encourage public involvement from vulnerable or under-represented groups most affected by poor street design and safety issues such as low-income and minority populations, seniors, youth, people with disabilities, and transit-dependent persons; (3) increase the attractiveness of transit as a viable transportation option with improvements to transit speeds and bus stop passenger amenities; (4) provide safe, comfortable, and continuous pedestrian and bicycle access along the corridor; (5) minimize conflicts and collisions between vehicles, pedestrians, and bicyclists; and (6) improve access over major barriers such as US 101 and SR 87.

 **Streetscape**



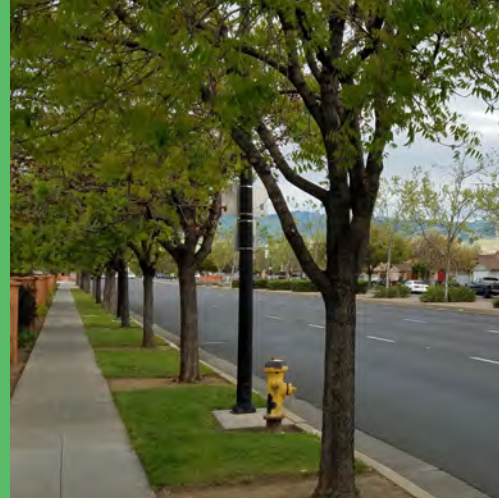
Widening Sidewalk

Wide sidewalks comfortably accommodate larger numbers of pedestrians of all ages and abilities.



Landscaping/Green Infrastructure

Landscaping buffers pedestrians from moving traffic and beautifies the environment. Green infrastructure areas help treat storm-water runoff.



Street Trees

Street trees beautify the urban environment and provide shade.



Pedestrian-Scale Lighting

Landscaping/Green infrastructure buffers pedestrians from moving traffic and beautifies the environment.



Driveways

Driveways should maintain a level sidewalk. This image shows a driveway sidewalk access maintain through curb extension/pocket plaza.

 **Transit**



Bus-Only Lanes

Bus Only lanes provide exclusive space for transit vehicles. Bus lanes reduce delays due to traffic congestion

 **Bikeways**



Buffered Bicycle Lanes

Buffered bicycle lanes designate a visual buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



Separated Bikeways

A separated bikeway is physically separated from motor traffic and distinct from the sidewalk. Separated bikeways offer a higher level of security and comfort than standard bike lanes. A lower cost version of this treatment could include flex posts and a striped buffer.



Bicycle Parking

Bicycle parking provides a secured facility for the storage of bicycles

Major Pedestrian Improvements



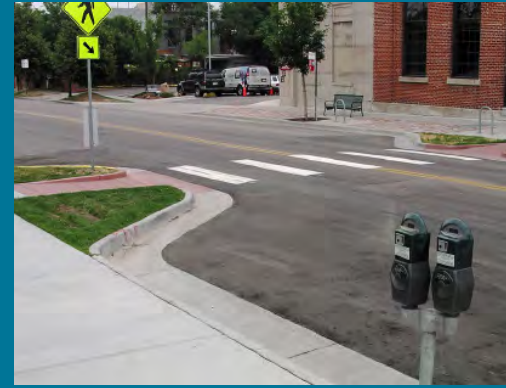
Median Refuge

Median refuge islands are protected spaces placed in the center of the street to facilitate bicycle and pedestrian crossings



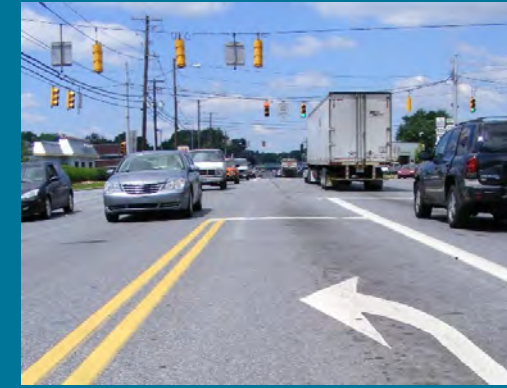
Leading Pedestrian Interval (LPI)

LPI typically gives pedestrians a 3–7 second head start when entering an intersection, enhancing their visibility in the intersection and reinforce their right-of-way over turning vehicles.



Bulb-out

Bulb outs are extensions of the curb that visually and physically narrow the roadway to increase visibility of pedestrians and shorten crossing distance.



Single Left-Turn Lanes

A left turn lane is a dedicated lane for left turning vehicles. Converting double left turn lanes to single lanes reduces the number of conflict points between vehicles and pedestrians.



Removing Pork Chop Islands

The removal of slip lanes or pork chop islands can help to narrow the roadway and reduce vehicle turning speeds, while improving pedestrian visibility and accessibility.

Minor Pedestrian Improvements



Straightened Crosswalks

This solution straightens out skewed crosswalks to increase pedestrian visibility and accessibility, while decreasing crossing distance



Reduced Curb Radii

Reducing wide curb radii helps to decrease vehicle turning speeds and pedestrian crossing distances.



High-Visibility Crosswalk

High Visibility crosswalks incorporate ladder-like striping to increase pedestrian visibility and improve driving yielding behavior.



Accessible Pedestrian Push Buttons

Accessible pedestrian push buttons are easily located by the visually impaired and provide audible for pedestrians crossing an intersection



Directional Curb Ramps

Directional curb ramps help to an accessible route for pedestrians at intersections. They can serve as a directional cue for the visually impaired.

Major Transit Improvements



Bus Bulbs
(See Major Stop Improvements for description and image)

Bus Boarding Island
(See Major Stop Improvements for description and image)

Transit Signal Priority (Transit Alternative)

Transit Signal Priority (TSP) uses technology to reduce dwell time at traffic signals for transit vehicles

Minor Transit Improvements



Queue Jump Lane

Queue jump lanes combine short dedicated transit facilities with either a leading bus interval or active signal priority to allow buses to easily enter traffic flow in a priority position.

Transit Signal Priority (Baseline and Streetscape and Pedestrian Alternatives)*

(See Major Transit Improvements for description and image)

*Transit Signal Priority (TSP) is considered a minor transit improvement in these alternatives, as TSP is more effective when installed with Bus Only Lanes.

Streetscape Improvements



Street furniture enhances the pedestrian environment and can be used to express neighborhood/district identity. Amenities can include trash receptacles, bicycle racks, and seating.



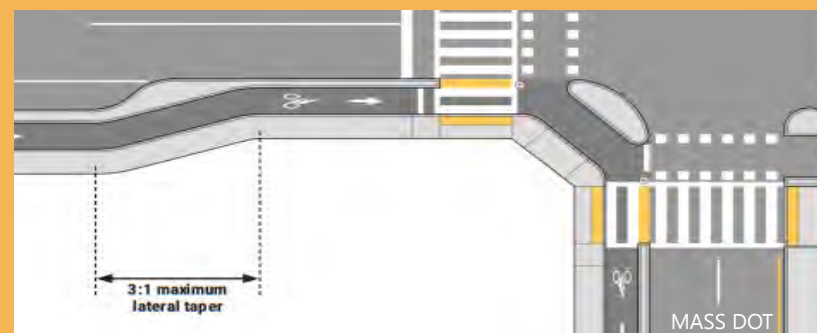
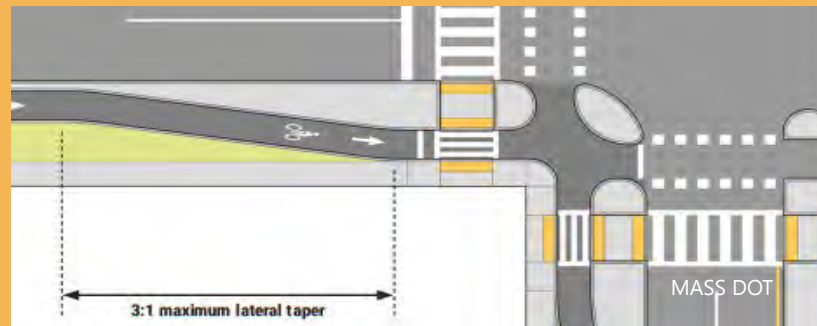
Major Bicycle Improvements



Protected Intersection

A protected intersection improves pedestrian and bicycle safety through reduced crossing distances, improved sight lines, and reduced auto turning speeds.

Minor Bicycle Improvements



Bend-In (Top), Bend-Out (Bottom)

Bend out deflection of a bike lane at an intersection improves visibility of cyclists for right turning vehicles. It can also provide space for left-turning vehicles to wait while yielding to bicyclists. In situation where sidewalk is constrained, bend-in deflection can be utilized.



Green Skip Striping at Conflict Zones

Green skip striping helps to highlight vehicle/bike conflict areas and increase cyclist visibility.



Major Bus Stop Improvements



Major Suburban Stop

Improvements for Major Suburban stops may include bike racks, lighting, schedule information, and seating.



Community Destination Stop

Improvements for Community Destination Stops emphasize their special location in the community may include seating, wayfinding and enhanced bus stop signage.



Minor Bus Stop Improvements



Replace an existing bus shelter



Bus Boarding Island

A bus boarding island is a designated passenger waiting area that streamlines transit service by enabling in-lane stops.



Pedestrian-Scale Lighting

Pedestrian-scale lighting is spaced closer together and lower in height than standard street lighting.



Bus Bulb

Bus bulbs align the bus stop with the parking lane, allowing buses to stop and board passengers without leaving the travel lane.



- VTA guidelines and documents, including the Pedestrian Access to Transit Plan, Transit Passenger Environment Plan, Community Design and Transportation Manual and the Santa Clara Countywide Bicycle Plan.
- City of San José guidelines, including the draft Complete Streets Design Guidelines, draft Vision Zero Recommendations, and General Plan.
- National best practice documents such as the NACTO Urban Streets Design Guide, Urban Bikeway Design Guide, and Transit Street Design Guide.

This memo primarily focuses on the feasibility of each segment alternative through conceptual cross-sections, as described in the subsequent section. Details regarding each of the transportation improvement options, including more context-specific application and dimensions, will be provided in the next phase of the Study as concept plan lines are prepared.

STORY ROAD, KEYES STREET AND GOODYEAR STREET ALTERNATIVES

Three alternatives have been developed for the Story Road and Keyes Street sections of the Study corridor. As summarized in **Table 1**, the alternatives presented in this section are:

- **Moderate Improvements Alternative:** This alternative is an incremental approach to complete streets improvements on Story Road, Keyes Street, and Goodyear Street. It is presented first because it is incorporated as a baseline set of improvements in both the Transit Priority and Streetscape and Pedestrian Priority Alternatives. This alternative provides a continuous bikeway and continuously focuses on spot improvements to improve safety and comfort at most intersections.
- **Transit Priority Alternative:** This alternative provides dedicated bus lanes and bus bulbs on Story Road only.
- **Streetscape and Pedestrian Priority Alternative:** This alternative provides sidewalk widening, landscape and streetscape improvements, and enhanced separated bikeway on Story Road, Keyes Street, and Goodyear Street.



TABLE 1: SUMMARY OF STORY ROAD, KEYES STREET, AND GOODYEAR STREET ALTERNATIVES

Segment	Moderate Improvements Alternative	Transit Priority Alternative	Streetscape and Pedestrian Priority Alternative
<i>Goodyear Street</i>	✓	X ¹	✓
<i>Keyes Street</i>	✓	X ¹	✓ ²
<i>Story Road</i>	✓	✓	✓

✓ = alternative is a potential solution for that segment

X = alternative is not a potential solution for that segment

1. Goodyear Street and Keyes Street were determined to not be transit priority portions of the corridor based on City of San José and VTA planning and policy considerations.

2. Keyes Street between 10th Street and Senter Road is not proposed for a lane reduction due to higher auto volumes through this stretch. Both 10th Street and 11th Street provide regional access to I-280, just north of the study corridor.

The description of each alternative below includes:

- **Table of Key Proposals:** A table summarizing the key changes along the corridor.
- **Segment and Intersection Improvements Figures:** Figures describing how the proposed cross-section changes along the corridor, and which segment improvements are used. It also shows the type of intersection improvements applied at each intersection. The visual glossary of segment and intersection improvements are presented on Figure 1 and Figure 2, respectively, and act as a visual legend for reviewing the potential improvements. Larger versions of the cross-sections are presented in **Appendices A, B, and C.**
- **Illustrative Snapshots:** This includes two illustrative images of the relevant alternative – a rendering showing the typical proposed alternative and a perspective rendering showing the streetscape and transportation improvements as seen from the corridor’s pedestrian realm.

Moderate Improvements Alternative

The Moderate Improvements Alternative assumes limited, incremental change on the corridor as excess roadway space is available. This alternative assumes no changes to the number of auto travel lanes, and instead narrows travel lanes to incorporate additional complete streets improvements. The focus of the Moderate Improvements Alternative is on targeted pedestrian, bicycle, and transit spot enhancements throughout the corridor. For pedestrians and bicyclists, the



focus is on safety improvements that would support achieving the City's Vision Zero goal. For example, the installation of high-visibility crosswalks and removal of right-turn slip lanes are spot improvements to improve safety for people who walk and bike. The Moderate Improvements Alternative utilizes excess roadway width to close all bicycle lane gaps on the corridor and provide separated bikeways for much of the corridor for increased cyclist comfort and safety. Supplemental or new pedestrian-scale lighting is proposed along the length of the corridor to improve pedestrian safety in general and pedestrian access to transit in particular, including the improvement of passenger's sense of security at bus stops. Transit signal priority (TSP) is proposed at each intersection to enhance bus speeds and reliability; however, its effectiveness will be limited since buses will continue to operate in a mixed-flow lane. Parking is typically retained to provide the separated bikeway. These proposals are summarized in **Table 2. Figure 3A, Figure 3B, and Figure 3C** present the segment improvements through cross-sections and detail the type of improvements anticipated at each intersection.

Streetscape improvements included in the Moderate Improvements Alternative are focused on enhancing the existing streetscape and improving comfort for people who walk by widening the sidewalk and providing buffers from moving traffic where space allows. Streetscape improvements include:

- Infill street trees where gaps exist along sidewalks
- New rows of street trees where current or proposed sidewalk widths allow
- Sidewalk widening and addition of landscape buffer/street trees in locations where they are less than eight feet
- Supplemental pedestrian-scale light fixtures where this type of lighting already exists along Keyes Street
- Additional pedestrian-scale lighting in a new style along Story Road, which is currently lit only by roadway cobra lights. The style of these fixtures should be selected to reflect the neighborhood identity along Story Road.

Additional streetscape and pedestrian safety improvements that can be achieved with the Moderate Improvements Alternative are located where right-turn slip lanes are removed and converted into additional sidewalk space or where curb extensions are added at intersections. In both cases, the gained space can be used to accommodate bicycle parking and other street furniture desired by adjacent businesses owners and the community, landscaping, and/or potentially green



infrastructure such as rain gardens that collect and treat storm water runoff from adjacent roadway and sidewalk surfaces.

This alternative proposes closing the sidewalk gap fronting 1210 Story Road through reducing the median by four feet. This would allow for a six foot sidewalk while maintaining a six foot bicycle lane until additional right-of-way can be secured in the future. Based on existing right-of-way lines and the already narrow travel lanes striped on Keyes Street, closing the sidewalk gap on the south side of Keyes Street at 1102 S. 3rd Street is not feasible without a lane reduction.

Further pedestrian safety benefits can be achieved in the long-term by mitigating and/or removing driveway/sidewalk conflicts. As properties redevelop, and through stakeholder outreach, continuously exploring opportunities for reducing driveway widths and reconstructing commercial and residential driveways to maintain a level sidewalk will further improve pedestrian safety and comfort. Encouraging consolidation of driveways and the shared-use of driveways by two adjacent commercial properties should be considered.

TABLE 2: KEY MODERATE IMPROVEMENTS ALTERNATIVE PROPOSALS






Type	Proposal
	<ul style="list-style-type: none"> • Sidewalk widened only where excess roadway width is substantial (e.g. Keyes Street near 11th). This allows for buffering from fast-moving traffic through street trees, landscape buffers, and/or green infrastructure. • Closes existing sidewalk gap on Story Road, but not on Keyes Street • Pedestrian-scale lighting installed to improve security, provide human scale to the sidewalk, provide a district identity, and beautify the urban environment • Intersection spot improvements focused on improving safety
	<ul style="list-style-type: none"> • Closes gaps in existing street tree/landscape buffer, as space allows • Where sidewalk is widened, provide new street trees, landscape buffer, and/or green infrastructure to provide human scale, shade, and beautification of the urban environment. • Improvements can be designed as green infrastructure (landscape-based biotreatment areas that use soil and plants to treat stormwater runoff from roads and sidewalks)
	<ul style="list-style-type: none"> • Transit signal priority installed at each signal • Pedestrian-scale lighting at bus stops • Shared bus pullout/bicycle lane allows for buses to move out of the travel lane
	<ul style="list-style-type: none"> • Existing bicycle lanes upgraded to separated bikeways through narrowing auto travel lanes to 10-11' • Close gaps in bicycle network with separate bikeways and buffered bicycles (only along existing residential frontages with on-street parking and frequent driveways) • Intersection spot improvements focused on improving safety and connected to bicycle network



TABLE 2: KEY MODERATE IMPROVEMENTS ALTERNATIVE PROPOSALS

Type	Proposal
	<ul style="list-style-type: none">• No change to the number of travel lanes• Parking is typically retained, except on the south side of the street between Adrian Way and Capitol Expressway, where existing time-of-day parking would be removed



The Moderate Improvements Alternative utilizes excess roadway width, if available, to provide separated bikeways and safety and security spot improvements for people who walk, bike, and take the bus.



Story Road – This is a typical rendering of the segment improvements on Story Road, which primarily consist of separated bikeways. They are shown here with a striped buffer and flexible



Keyes Street – This is a typical rendering of the improvements on Keyes Street. The segment improvements are similar to the existing condition. At intersections, curb extensions (shown here) or “bend-out” bicycle improvements can be used to improve pedestrian and



Story Road – This is a typical rendering of the segment improvements on Story Road, which primarily consist of separated bikeways. They are shown here with a striped buffer and flexible posts.

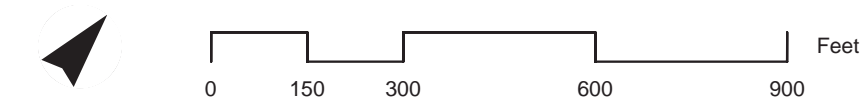
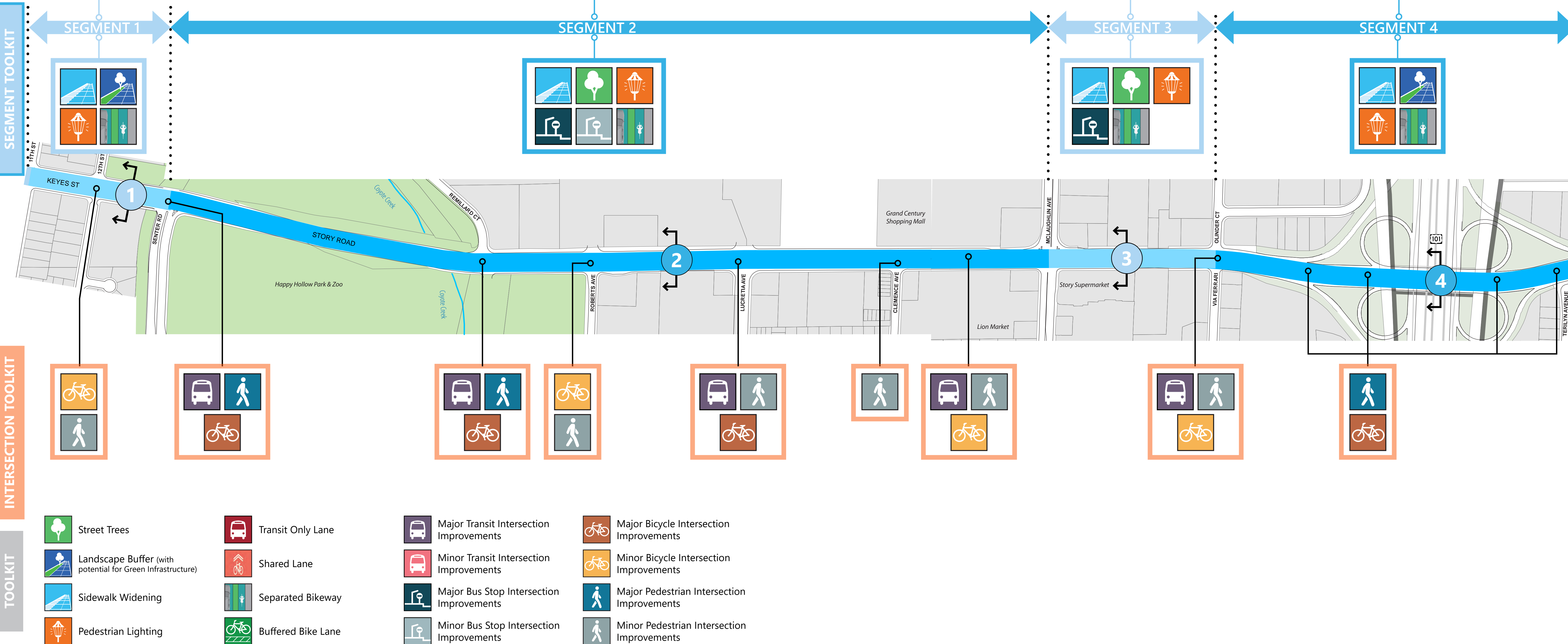
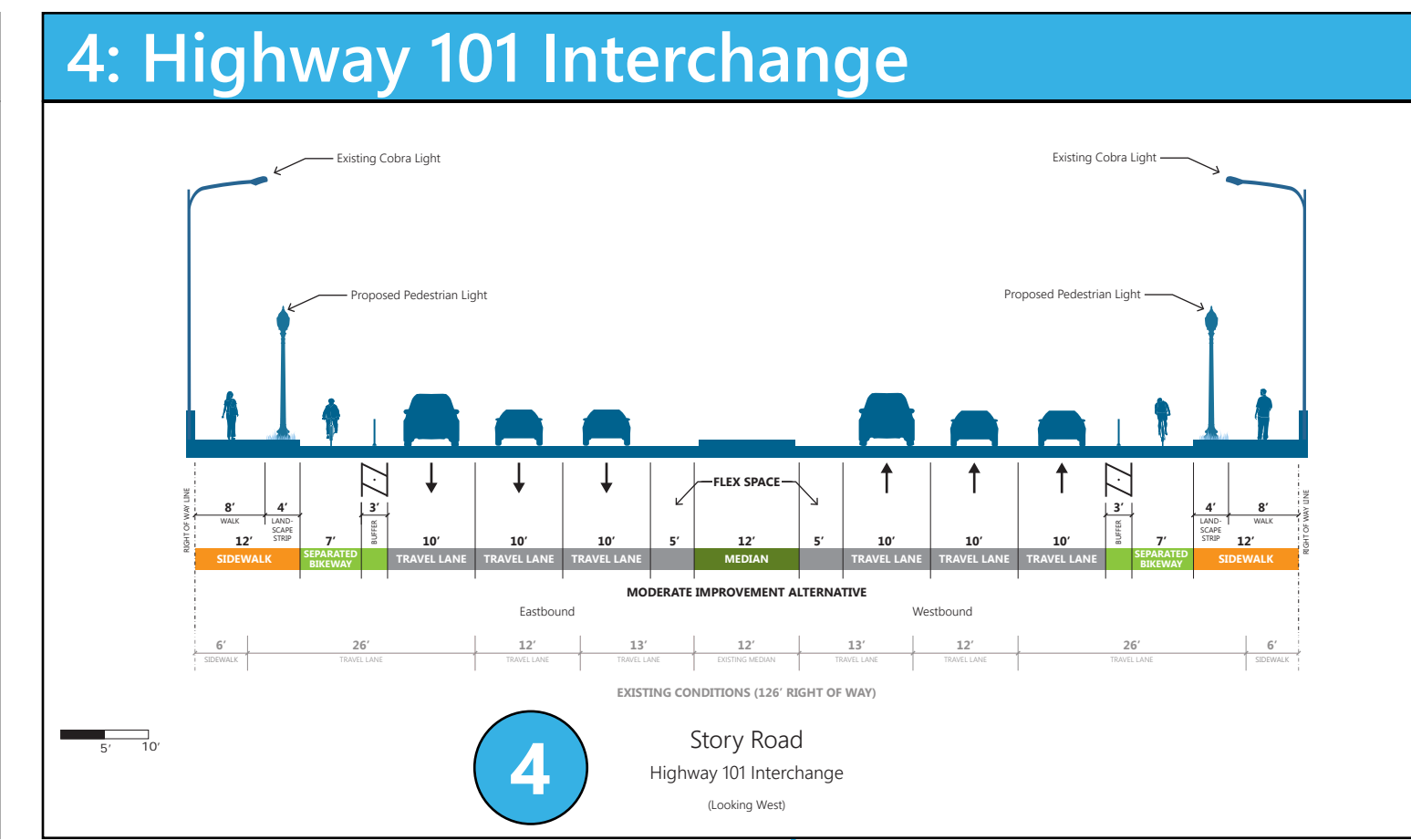
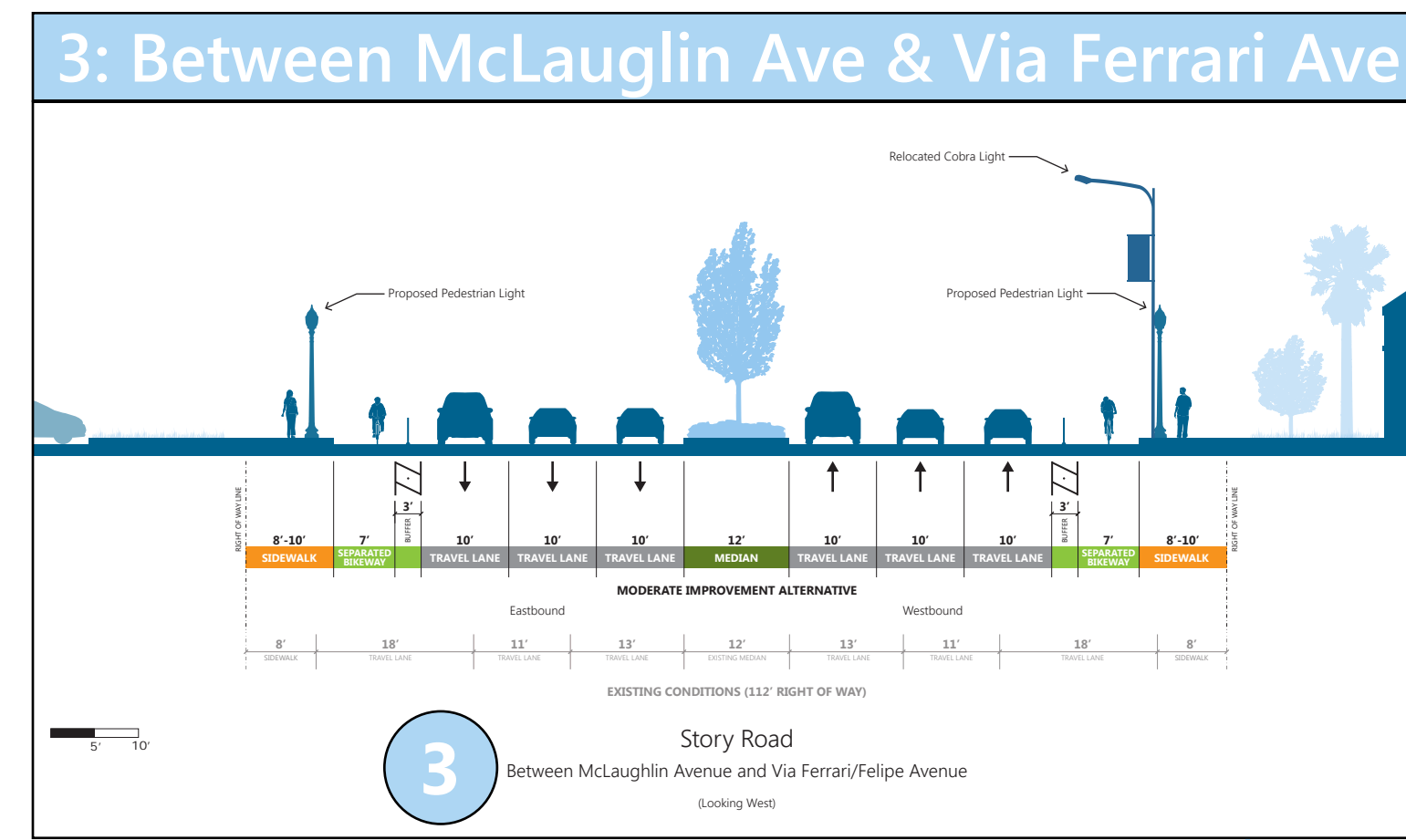
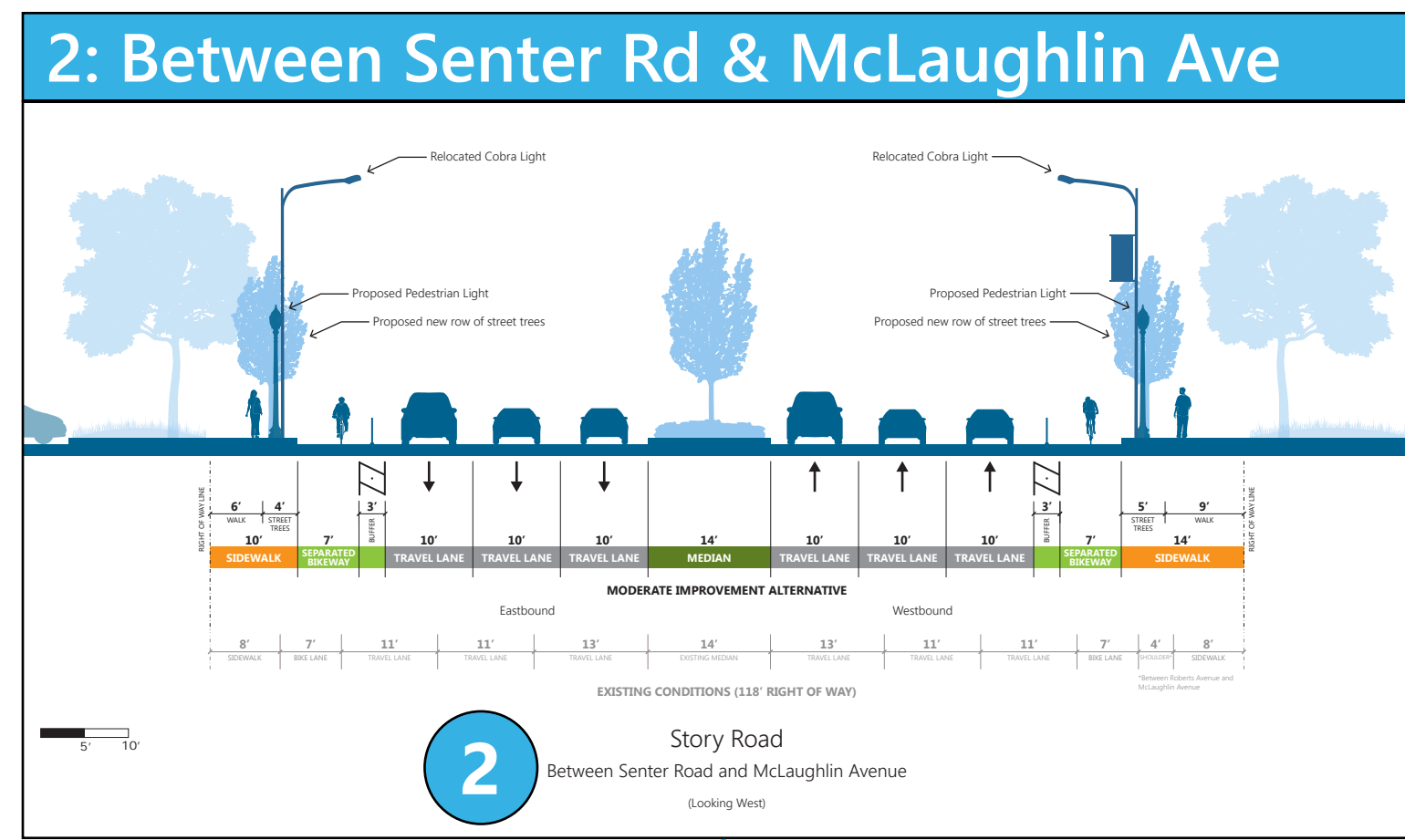
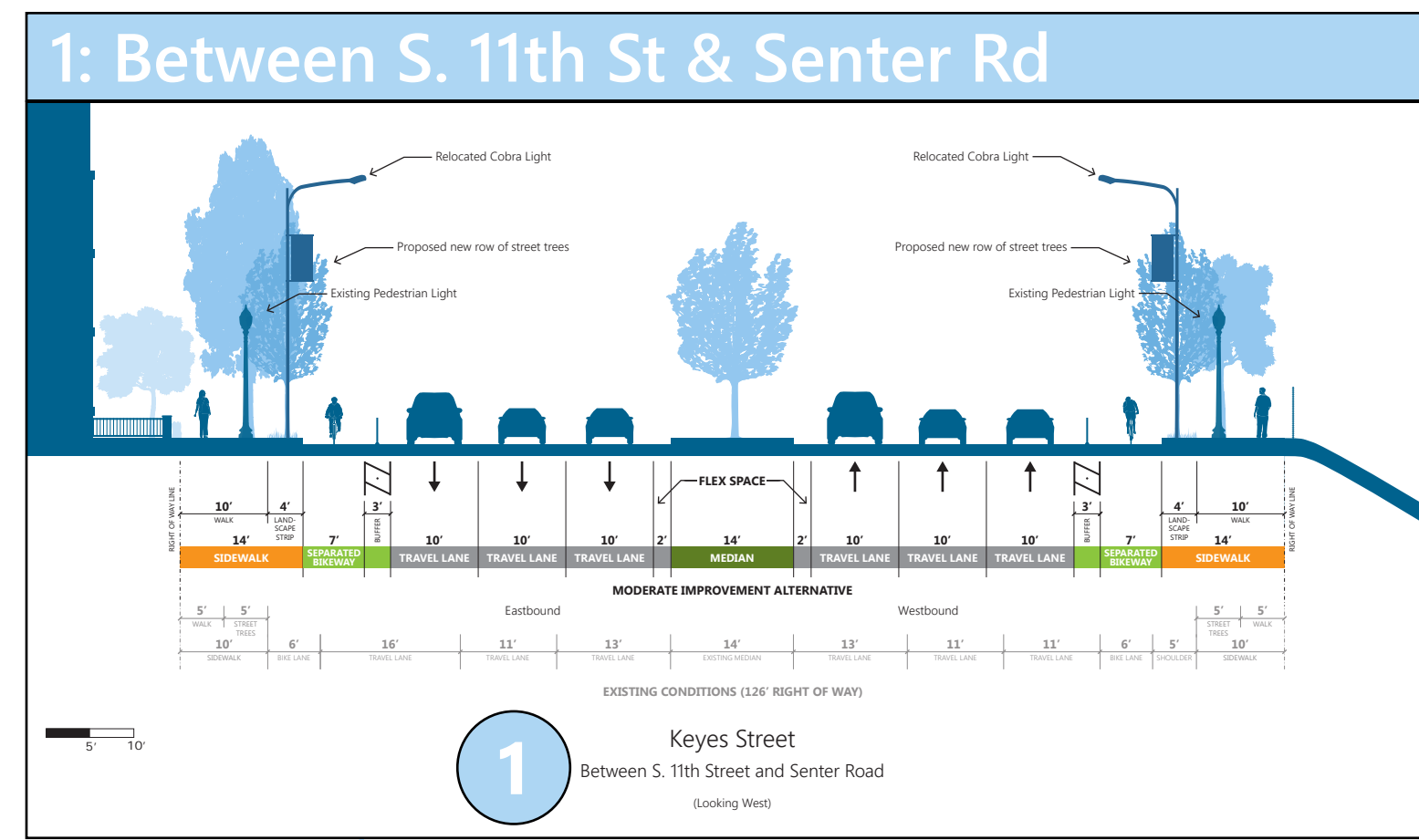


Figure 3B: Keyes Street at S 11th Street to Story Road at Knox Avenue
MODERATE IMPROVEMENT ALTERNATIVE

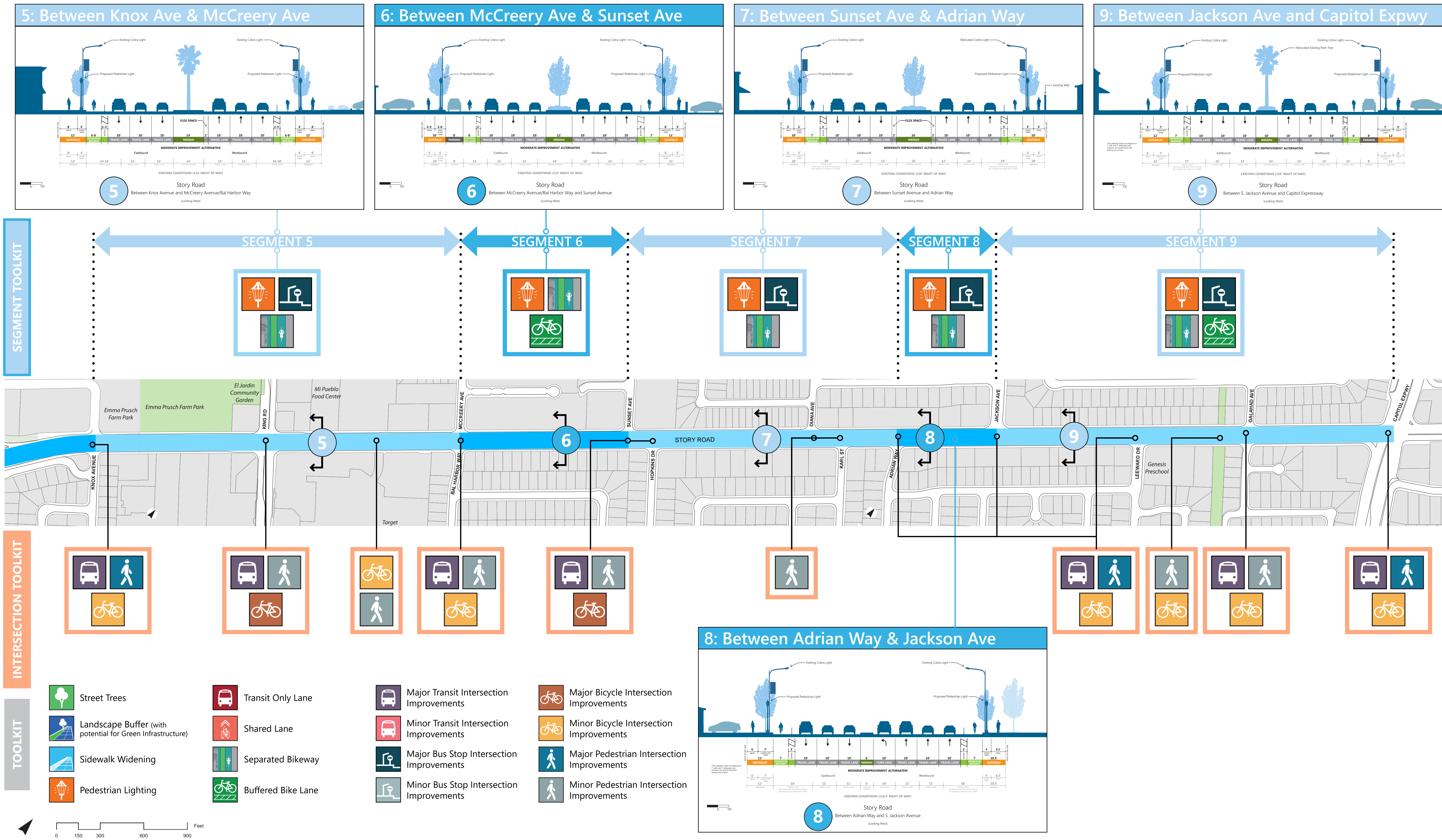


Figure 3C: Story Road at Knox Avenue to Story Road at Capitol Expressway
 MODERATE IMPROVEMENT ALTERNATIVE








High Transit Priority Alternative

The Transit Priority Alternative re-envision Story Road as a Grand Boulevard². Under this alternative, one travel lane in each direction will be converted to a dedicated bus lane to prioritize transit on the corridor. Dedicated bus lanes and boarding islands designate road space specifically to transit vehicles and passengers, enabling increased bus travel speeds and reliability. In this alternative, TSP will have greater efficacy because buses operating in their own lanes are not hindered by other vehicles as they approach the intersection. Like the Moderate Improvement Alternative, this option also proposes separated bikeways. Because the bus has dedicated space to stop in, bus bulbs are proposed with separated bikeway running behind them. This will remove bus and bicycle conflicts and provide a more comfortable passenger waiting environment. The extents for this alternative are on Story Road from Senter Road to Capitol Expressway, as Keyes Street is not anticipated to become a transit priority corridor in the City's General Plan. No service changes are proposed to VTA Line 25, the primary bus route operating on the corridor.

² The Envision San José 2040 General Plan identifies the following street typologies: Grand Boulevard, On-Street Primary Bicycle Facility, Main Streets, City Connector Street, Local Connector Street, Residential Street, Expressway and Freeway. Currently, the following street types apply to Story Road: City Connector Street (1st Street to US-101) and Main Street (US-101 to Capitol Expressway). Main Streets play an important role in defining the character of a surrounding neighborhood and emphasize pedestrian activity, while City Connectors give equal priority to all roadway users. Grand Boulevards are designated as major transportation corridors and serve as primary routes for transit vehicles.



TABLE 3: SUMMARY OF KEY TRANSIT ALTERNATIVE PROPOSALS

Type	Proposal
	<ul style="list-style-type: none"> • Sidewalk widened only where excess roadway width is substantial (e.g. Keyes Street near 11th). This allows for buffering from fast-moving traffic through street trees, landscape buffers, and/or green infrastructure. • Closes existing sidewalk gap on Story Road, but not on Keyes Street • Intersection spot improvements focused on improving safety • Pedestrian-scale lighting installed to improve security, provide human scale to the sidewalk, provide a district identity, and beautify the urban environment • Intersection spot improvements focused on improving safety
	<ul style="list-style-type: none"> • Closes gaps in existing street tree/landscape buffer, as space allows • Where sidewalk is widened, provide new street trees, landscape buffer, and/or green infrastructure to provide human scale, shade, and beautification of the urban environment. • Improvements can be designed as green infrastructure (landscape-based biotreatment areas that use soil and plants to treat stormwater runoff from roads and sidewalks)
	<ul style="list-style-type: none"> • Transit signal priority installed at each signal • Pedestrian-scale lighting at bus stops • Exclusive bus lanes and boarding islands prioritize transit on the corridor
	<ul style="list-style-type: none"> • Existing bicycle lanes upgraded to separated bikeways through narrowing auto travel lanes to 10-11' • Close gaps in bicycle network with separate bikeways and buffered bicycles (only along existing residential frontages with on-street parking and frequent driveways) • Intersection spot improvements focused on improving safety and connected to bicycle network
	<ul style="list-style-type: none"> • One lane of traffic removed in each direction • Parking is typically retained, except on the south side of the street between Adrian Way and Capitol Expressway, where existing time-of-day parking would be removed



The High Transit Priority assumes the Moderate Improvements Alternative and converts the third outside travel lane of Story Road to a dedicated bus-only lane. This alternative only applies to Story Road based on VTA and City of San José guidance and policy on transit priority.



Story Road – This is a typical rendering of the segment improvements on Story Road, which primarily consist of bus-only lanes. The Moderate Improvement Alternative improves, such as the separated bikeway, are also included.



Story Road – This is a typical rendering of the segment improvements on Story Road, which converts the outside travel lane to a bus only lane and accommodates a separated bikeways. The separated bikeways is shown here with a striped buffer and flexible posts.

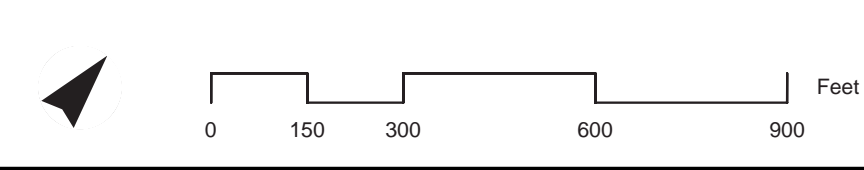
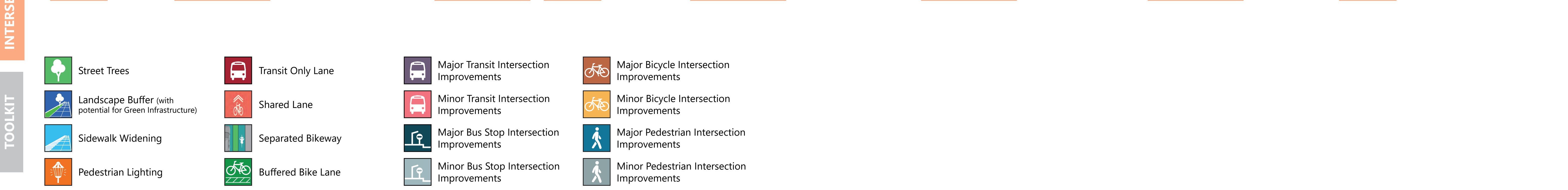
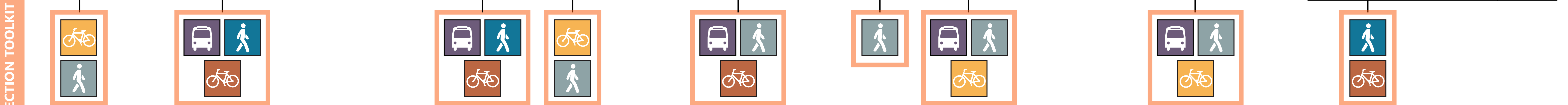
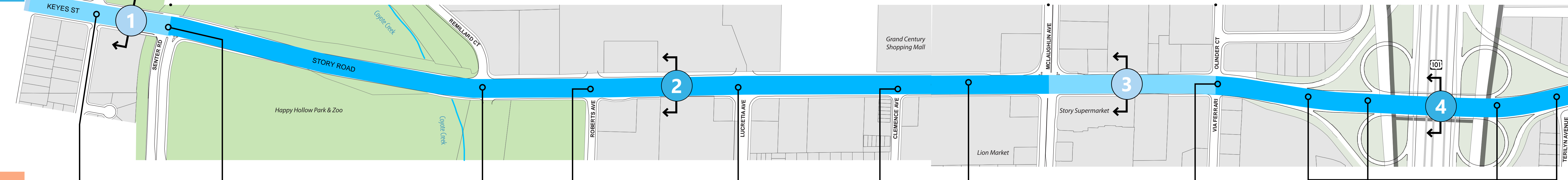
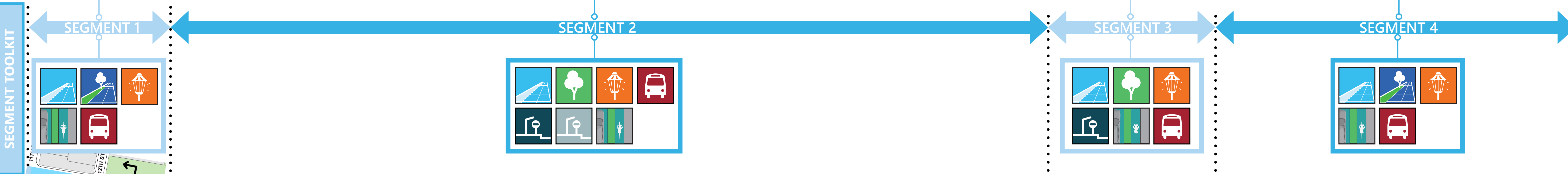
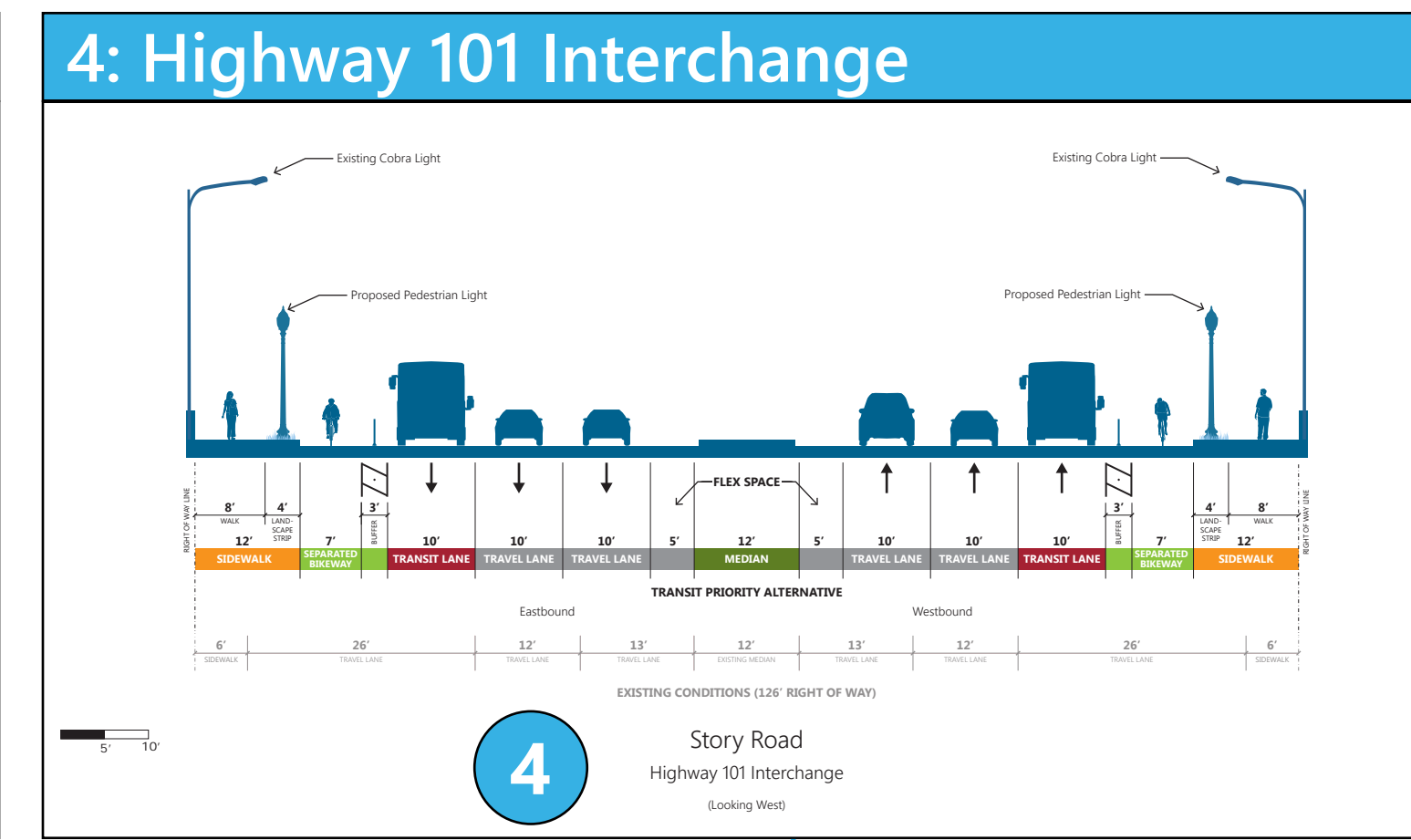
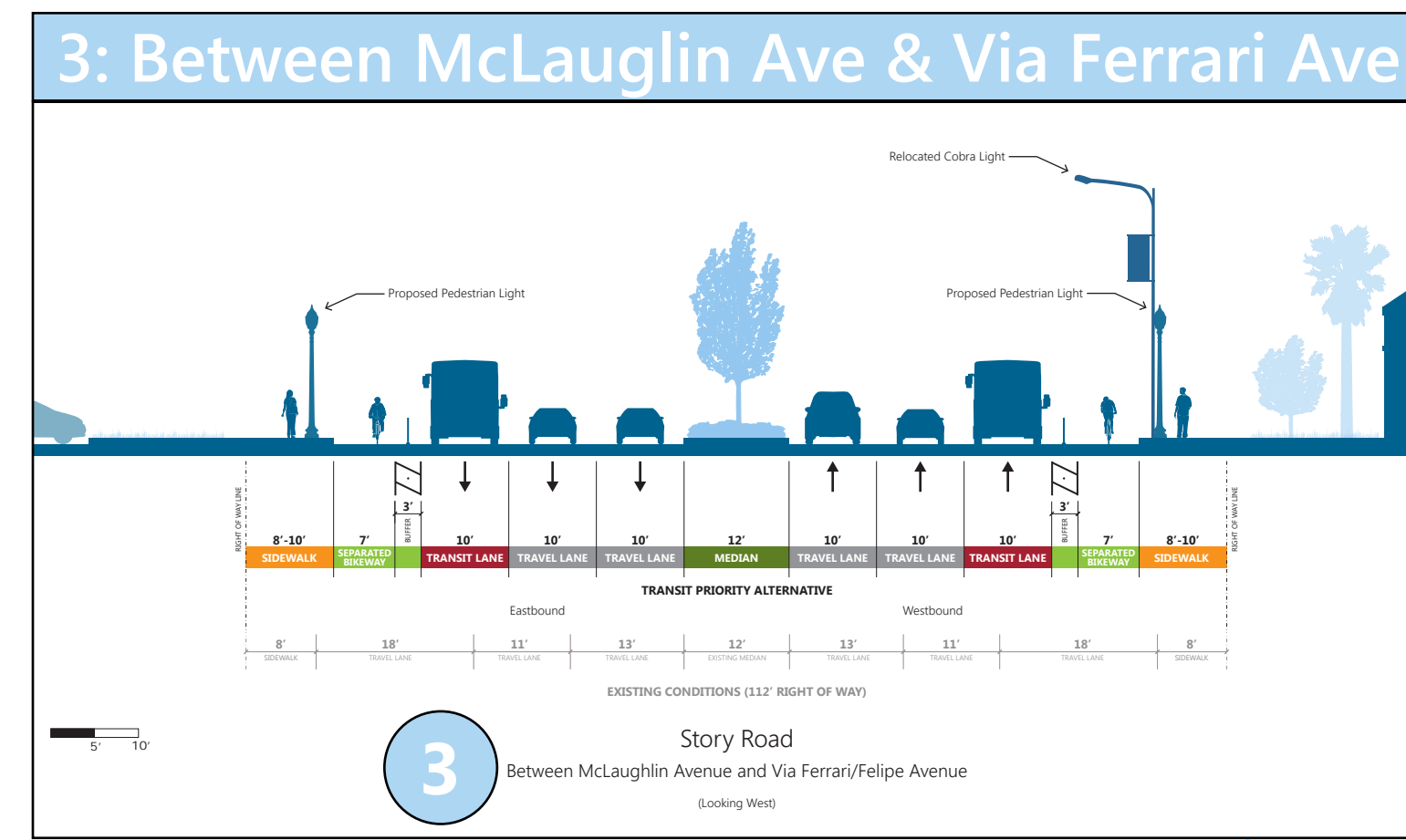
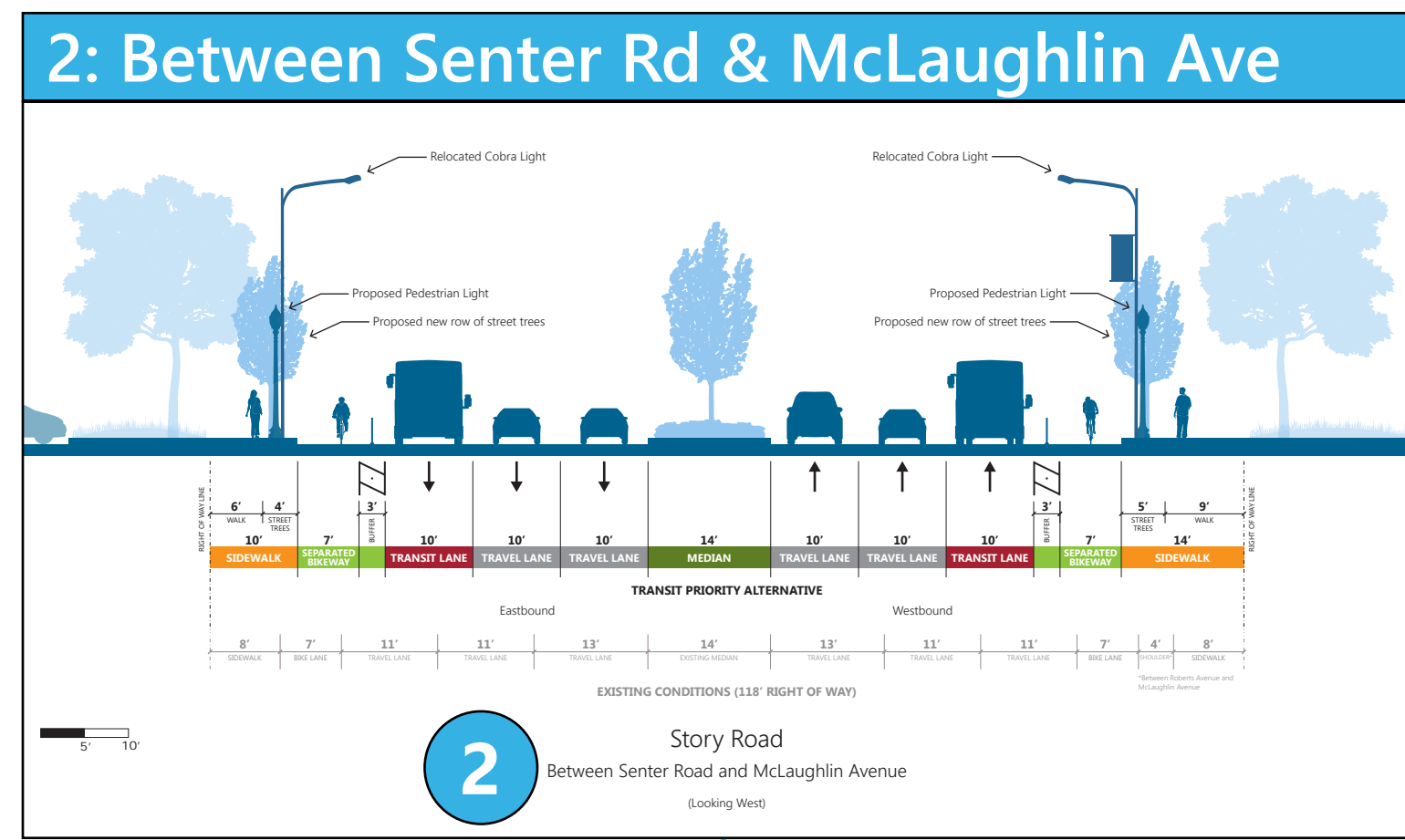
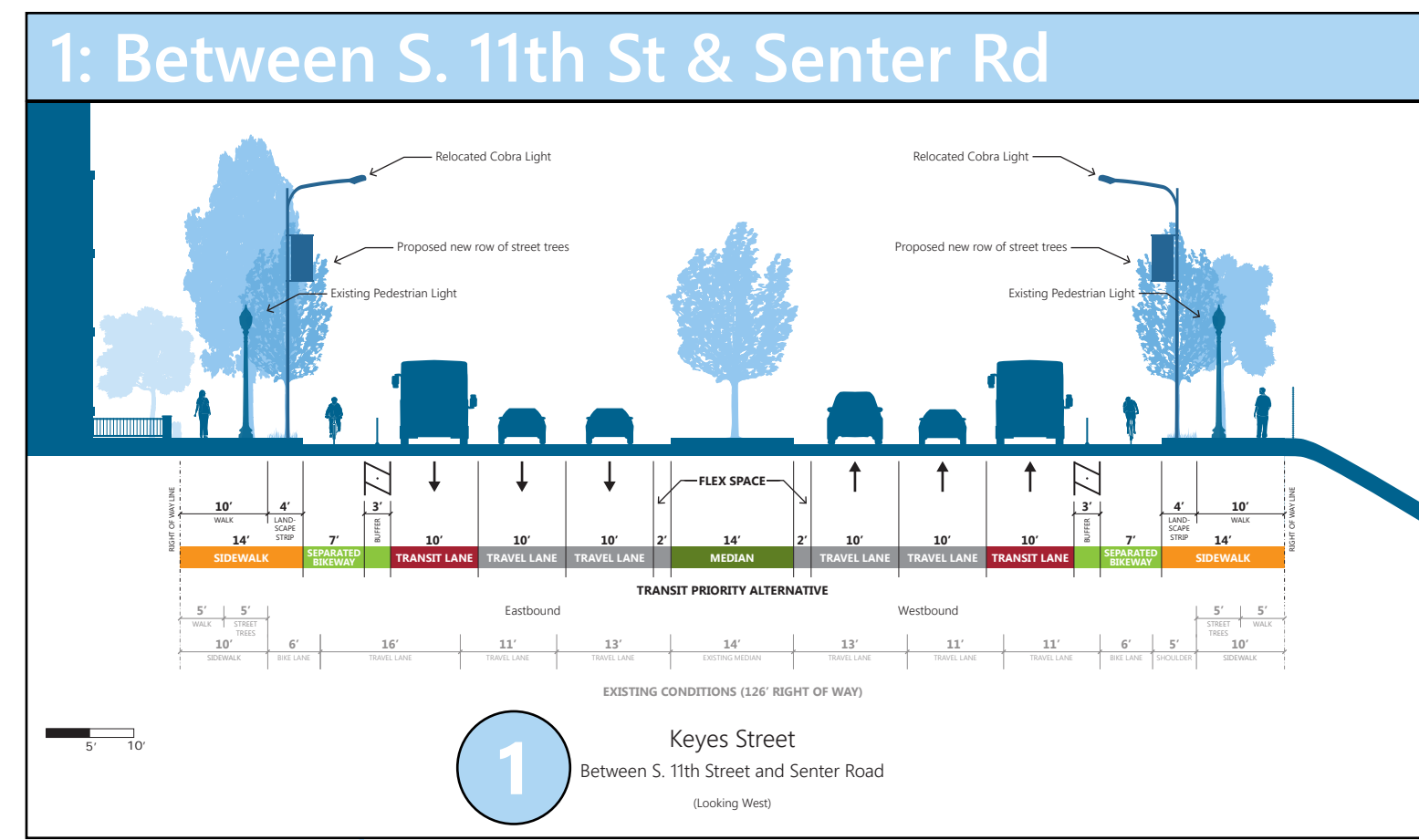


Figure 4A: Keyes Street at S 11th Street to Story Road at Knox Avenue
TRANSIT PRIORITY ALTERNATIVE

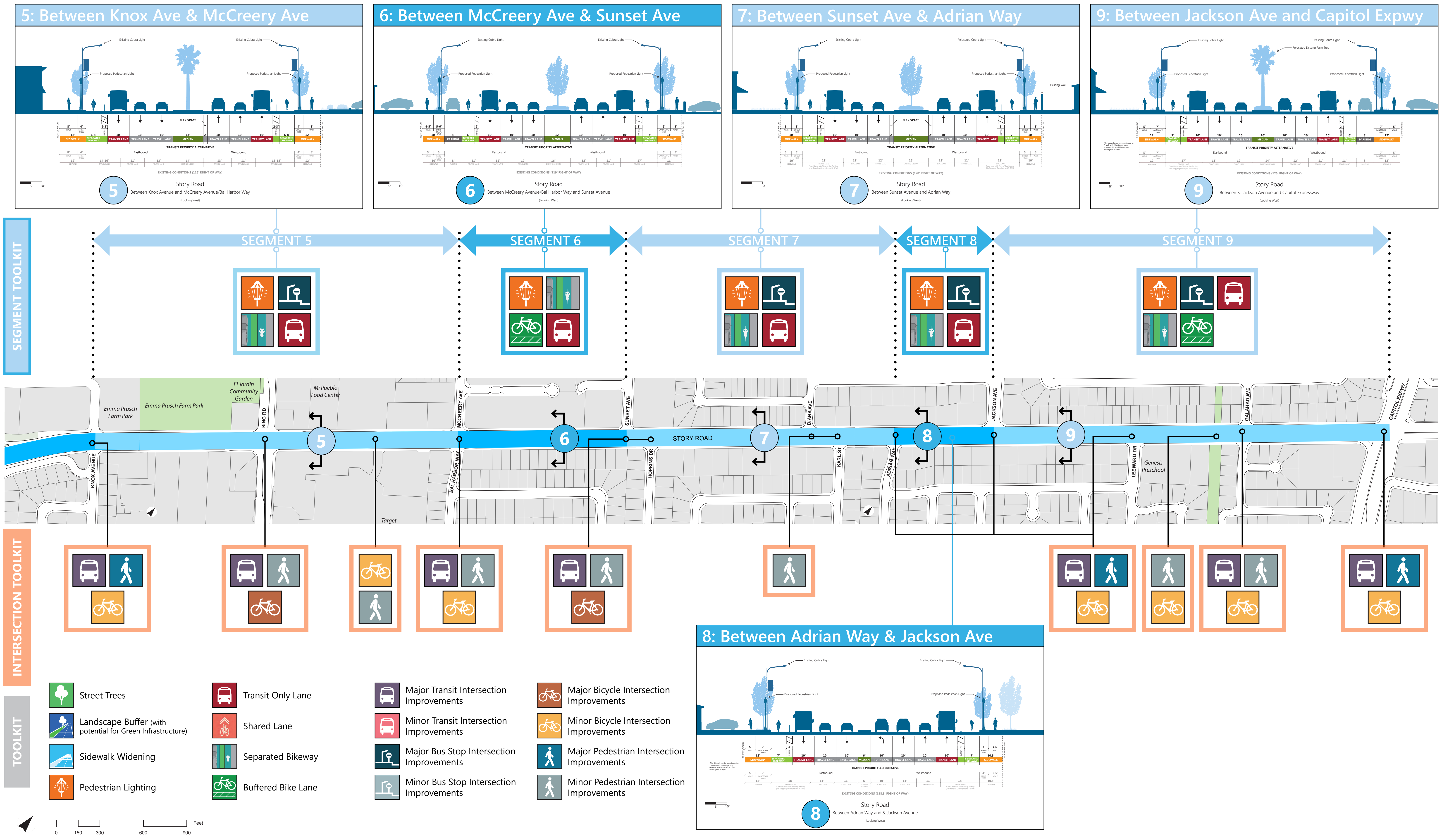


Figure 4B: Story Road at Knox Avenue to Story Road at Capitol Expressway
TRANSIT PRIORITY ALTERNATIVE



Streetscape and Pedestrian Priority Alternative

The Streetscape and Pedestrian Priority Alternative incorporates substantial landscape-based streetscape and safety improvements through conversion of one travel lane in each direction to additional space for people who walk, bike, and take the bus. This alternative is anticipated to provide substantial safety benefits. This alternative fosters a safer, more inviting environment for active transportation modes at intersections and is intended to lower the design speed of the roadway. The additional roadway space is used to:

- Widen the sidewalk
- Increase the buffering of the sidewalk from moving traffic by planting new rows of street tree and expanding the use of landscaped buffer strips
- Widening and landscaping the raised medians separating bicyclists and motorists.

In addition, this alternative allows for the potential installation of green infrastructure such as linear bio-retention planters, linked tree wells that treat storm water, and other potential landscape-based elements designed to support the reduction and treatment of pollutants in the storm water runoff from streets. This alternative would close both the sidewalk gaps at 1210 Story Road and the gap at 1102 S. 3rd Street through the proposed lane reduction.






With these substantial landscape and median island improvements, pedestrian crossing distances of the auto travel-way are substantially reduced for over three miles of the corridor, representing a major pedestrian safety benefit. Similarly, bikeways in this alternative further enhance the separated bikeway proposal by incorporating additional elements including landscaped medians to improve the quality of the bicycling and walking environments. Additional outreach to business owners and observations of driveway use on Keyes Street will help clarify if separated bikeways are appropriate through this section or if buffered bicycle lanes better mitigate auto-bicycle conflicts. This provides additional space at intersections for major bicycle improvements, such as protected intersections. Protected intersections will provide low-stress crossings for bicyclists, increase visibility between drivers and cyclists and pedestrians, and reduce pedestrian crossing distances. **Figures 5a, 5b, and 5c** present the Streetscape and Pedestrian Priority Alternative conceptual cross-sections.

The four travel lane cross-section of Story Road under this alternative would continue onto Keyes between 10th Street and Senter Road given the higher auto volumes through this section. The



second westbound travel lane would drop and become a right-turn lane at S. 11th Street, and the second eastbound through lane would add at S. 10th Street.

TABLE 4: SUMMARY OF KEY STREETScape AND PEDESTRIAN ALTERNATIVE PROPOSALS

Type	Proposal
	<ul style="list-style-type: none"> • Substantial sidewalk widening to provide additional pedestrian space and landscaping/green infrastructure. This allows for buffering from fast-moving traffic through street trees, landscape buffers, and/or green infrastructure. • Closes existing sidewalk gaps on Story Road and Keyes Street • Pedestrian-scale lighting installed to improve security, provide human scale to the sidewalk, provide a district identity, and beautify the urban environment • Major opportunities pedestrian improvements at intersections, primarily through reduced crossing distances resulting from extended sidewalks and median refuges
	<ul style="list-style-type: none"> • Substantial landscaping, street trees, and green infrastructure installation to provide human scale, shade, and beautification of the urban environment. • Opportunities for wide median island buffering bicyclists from moving traffic and buffering the sidewalk from the separated bikeway • Improvements can be designed as green infrastructure (landscape-based biotreatment areas that use soil and plants to treat stormwater runoff from roads and sidewalks)
	<ul style="list-style-type: none"> • Transit signal priority installed at each signal • Pedestrian-scale lighting at bus stops
	<ul style="list-style-type: none"> • Existing bicycle lanes upgraded to separated bikeways • Close gaps in bicycle network with enhanced separated bikeways that have landscaped medians • Major bicycle improvements at intersections
	<ul style="list-style-type: none"> • One lane of traffic removed in each direction • Parking is typically retained, except on the south side of the street between Adrian Way and Capitol Expressway, where existing time-of-day parking would be removed



The Streetscape and Pedestrian Priority Alternative assumes the Moderate Improvements Alternative and converts the third outside travel lane of Story Road to additional sidewalk and streetscape space to beautify the segment and create a more walkable and comfortable environment.



Story Road – This is a typical rendering of the segment improvements on Story Road, which primarily consist of substantial sidewalk widening and landscape improvements. The separated bikeway is enhanced with a planted median island. Crossing distances are reduced, and bend-in/bend-out treatments can be incorporated for bicycle safety at intersections.

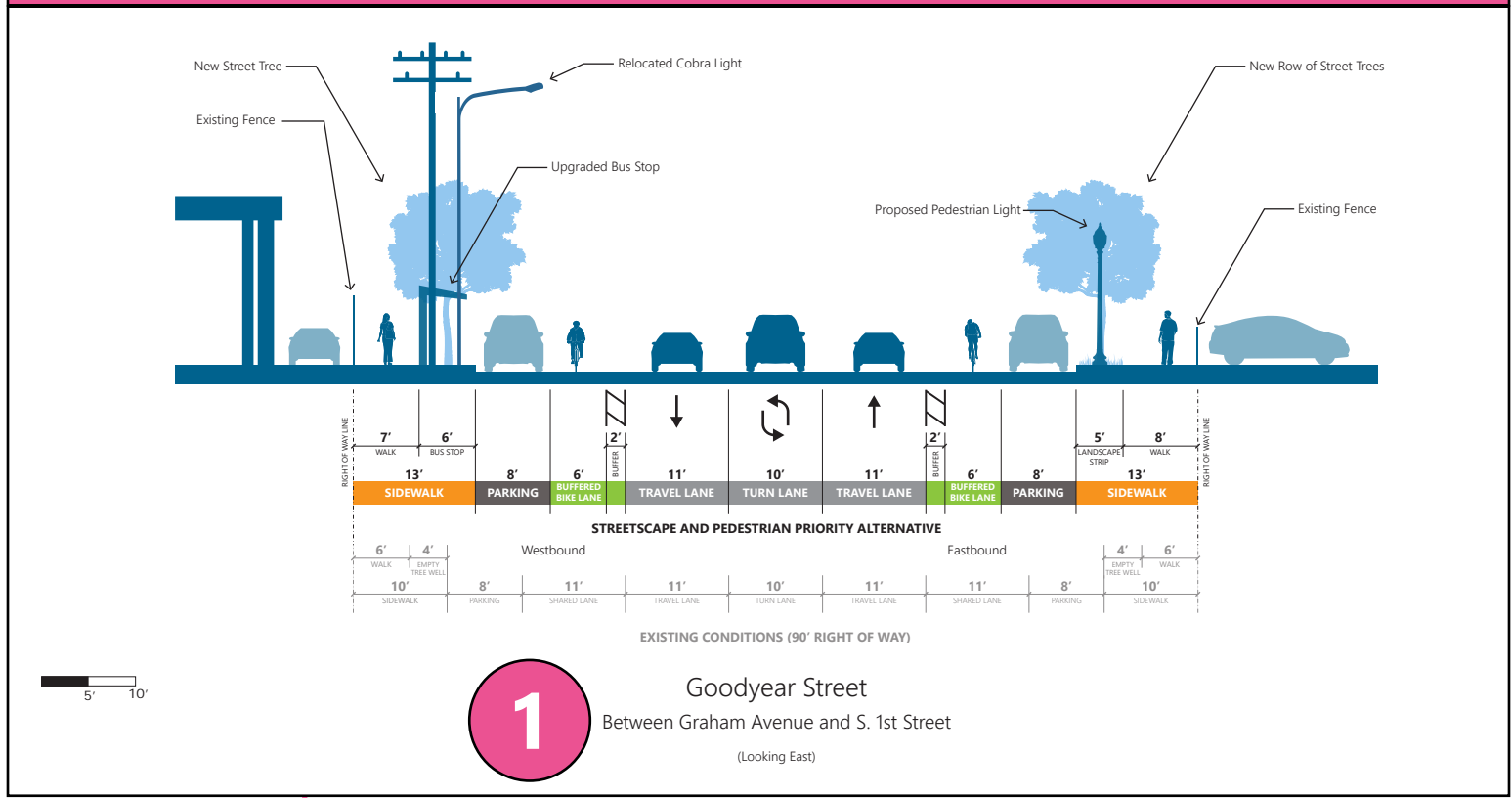


Keyes Street – This is a typical rendering of the segment improvements on Keyes, which primarily consist of substantial sidewalk widening and landscape improvements. Crossing distances are reduced substantially with planted median islands at intersections. Bend-in/bend-out treatments can be incorporated for bicycle safety at intersections.



Story Road – This is a typical rendering of the segment improvements on Story Road. Improvements include a widened sidewalk and a street tree and landscape buffer from the separated bikeway. The separated bikeway buffer is widened and includes a landscape median and street trees.

1: Between Sherman St & S 1st St



2: Between S 1st St & S 10th St

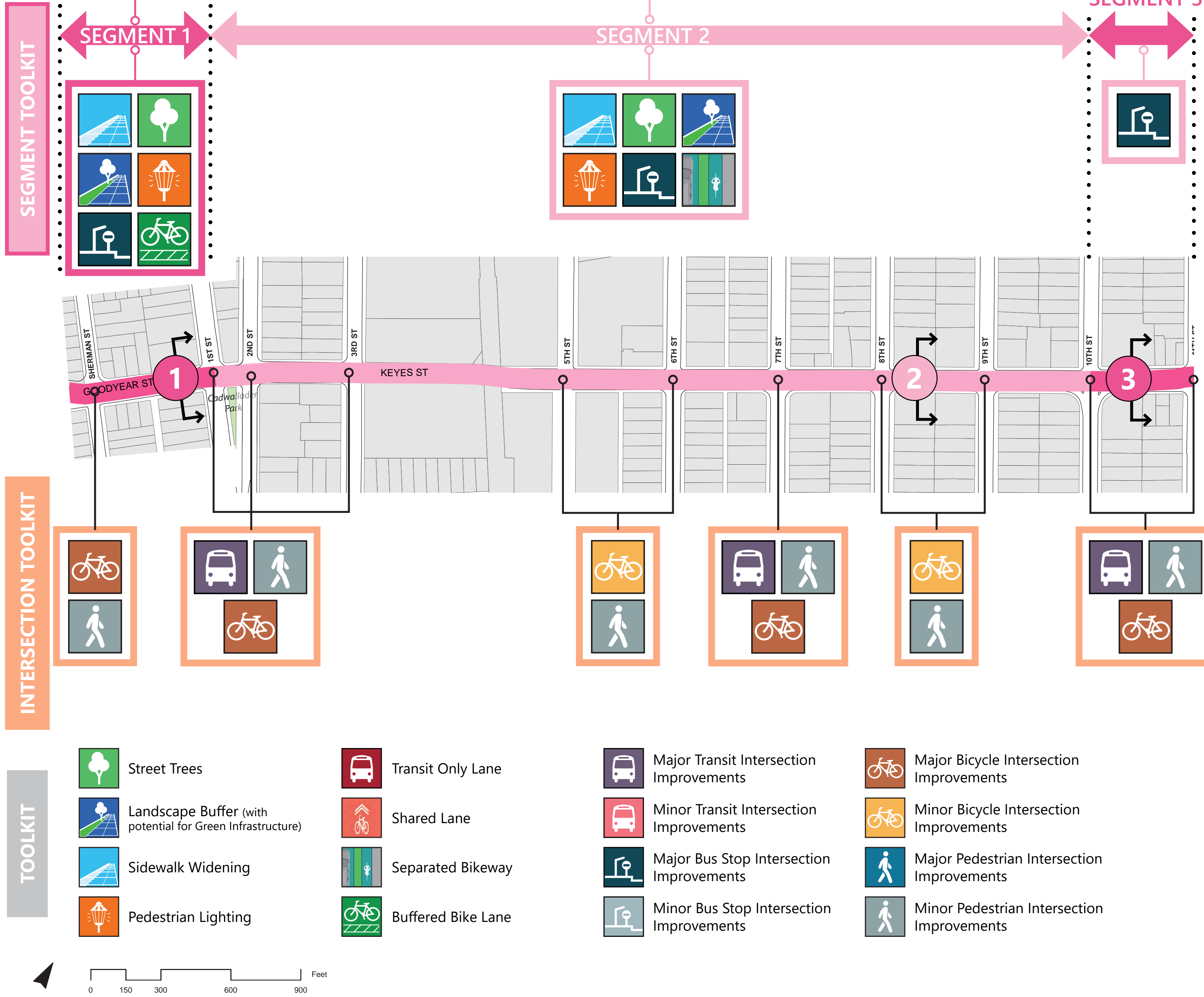
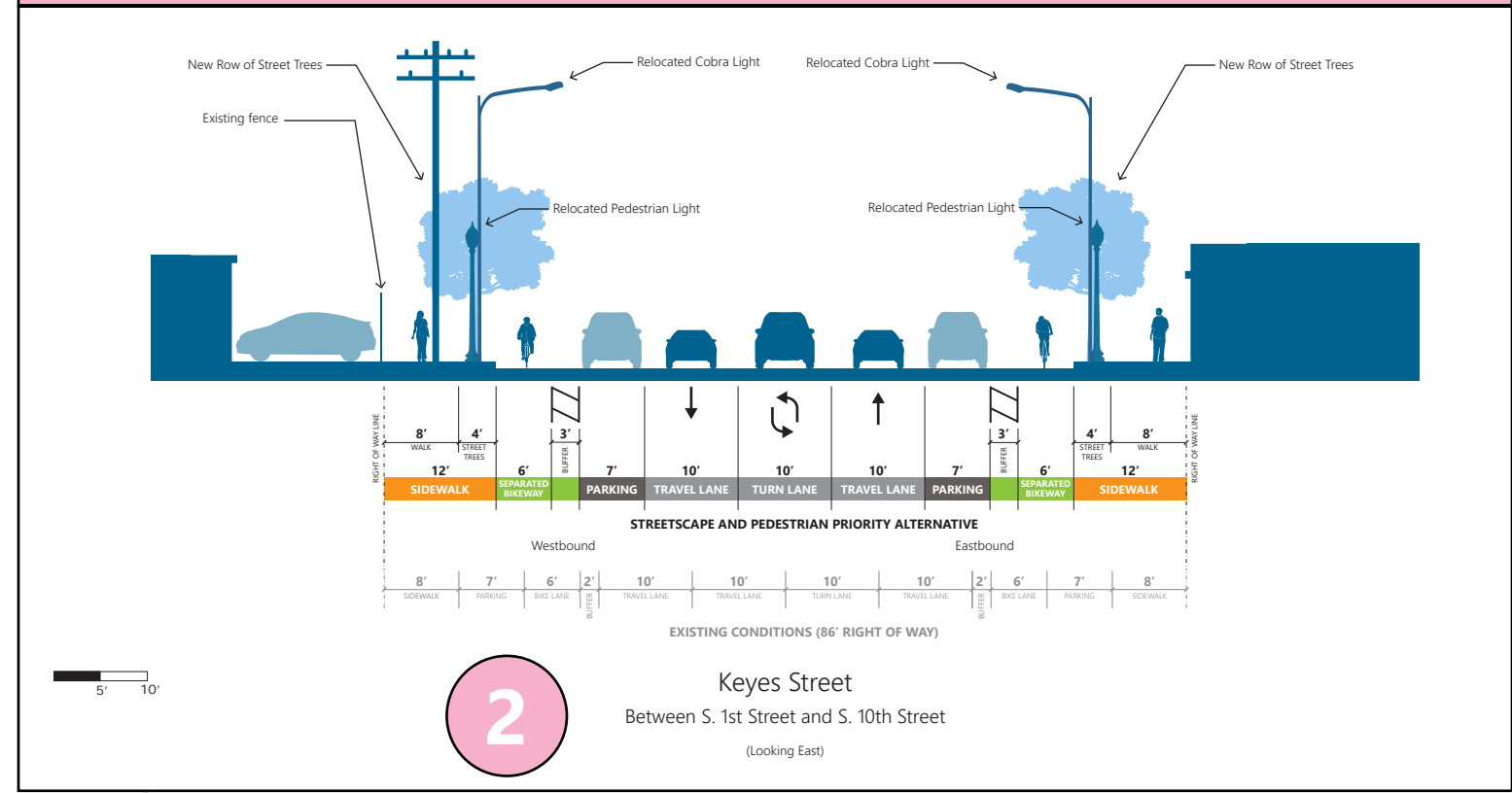


Figure 5A: Goodyear Street at Graham Avenue to Keyes Street at South 11th Street STREETScape AND PEDESTRIAN PRIORITY ALTERNATIVE

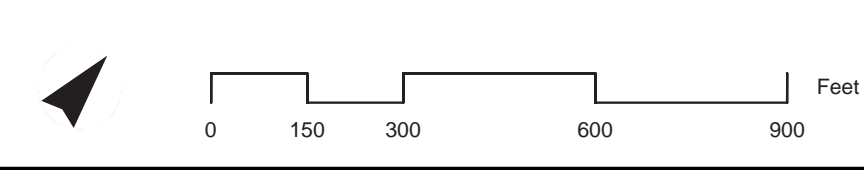
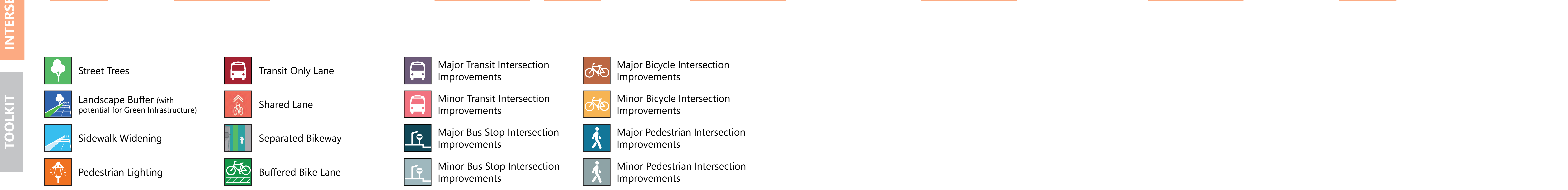
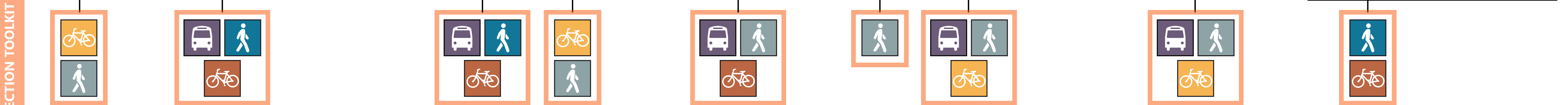
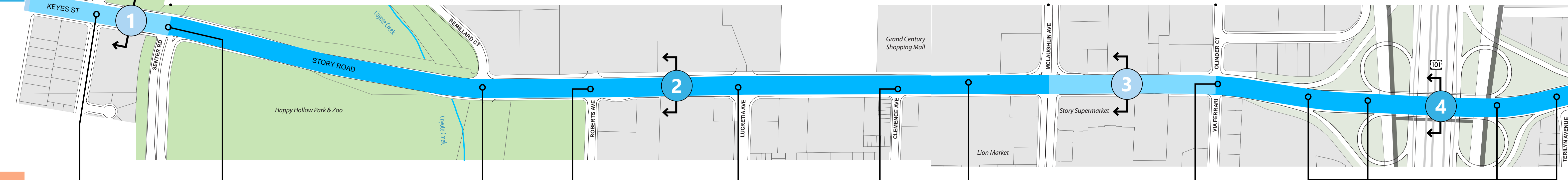
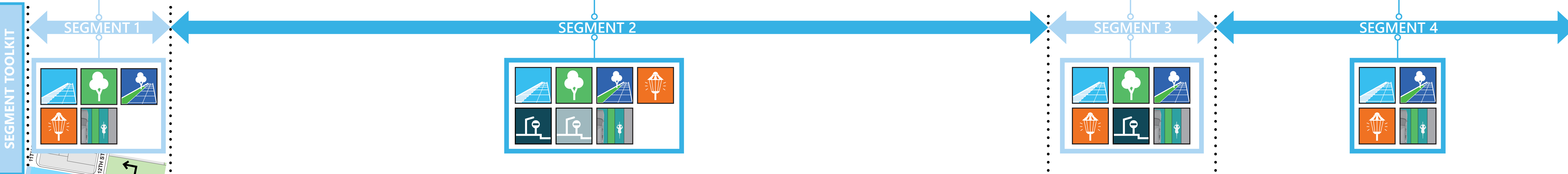
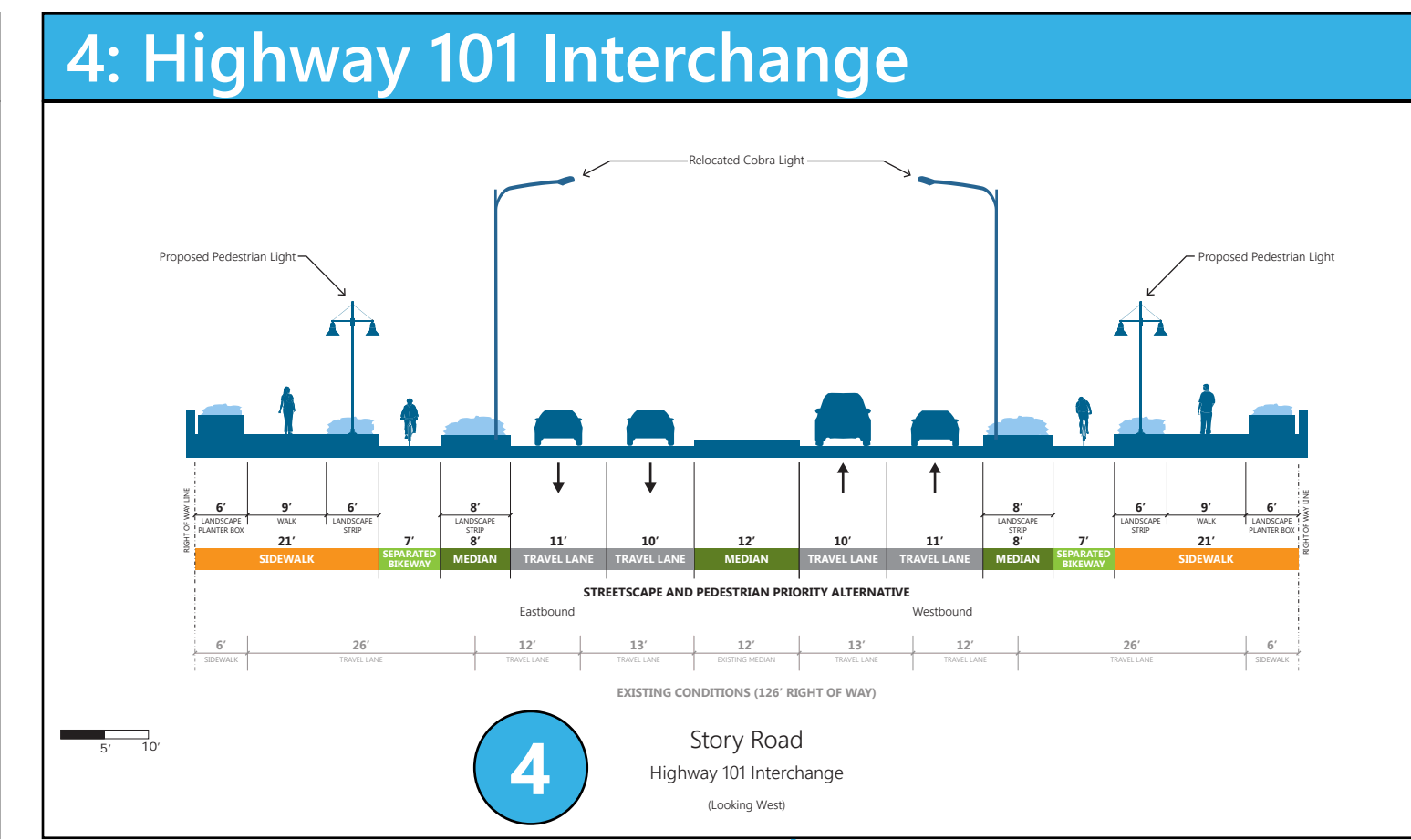
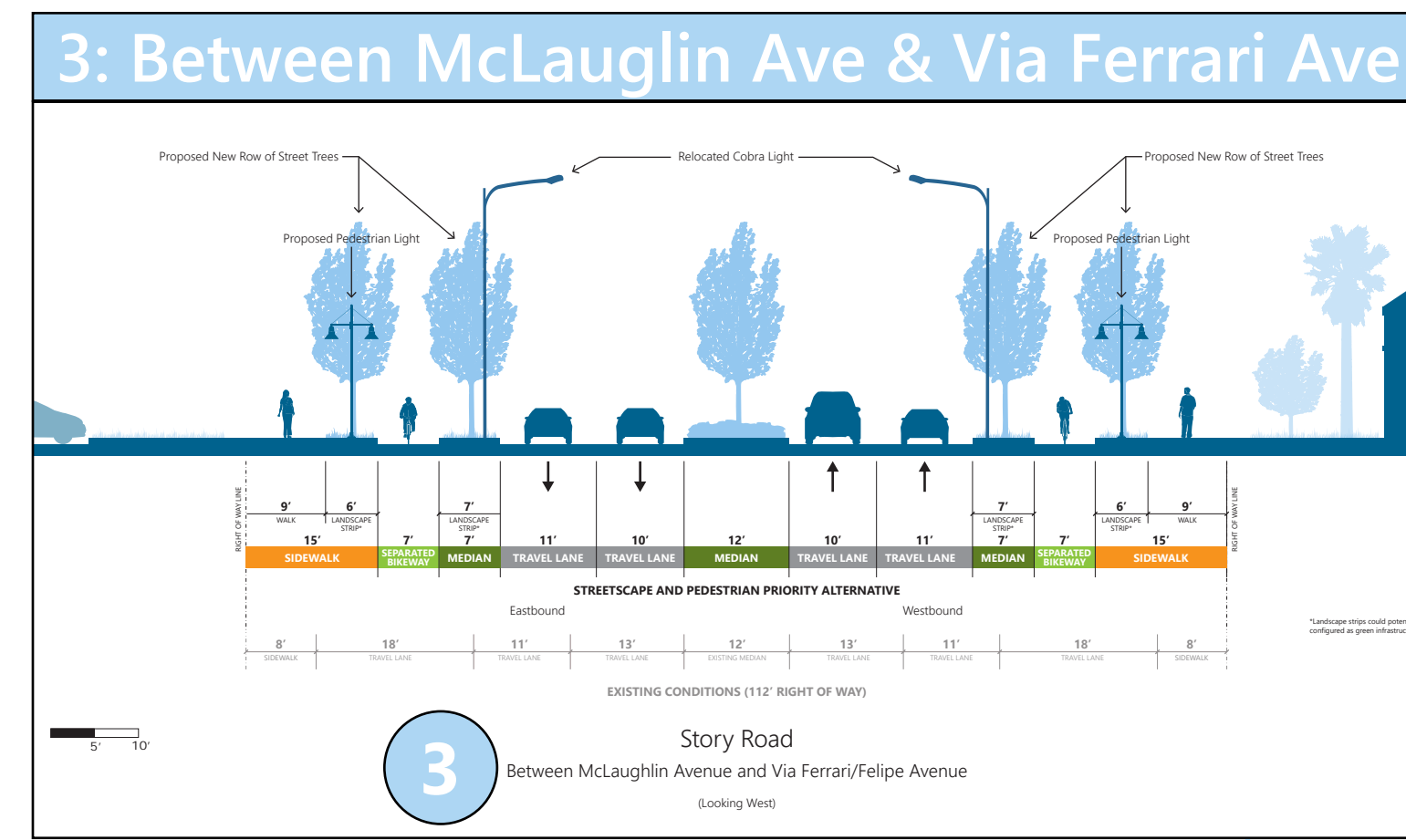
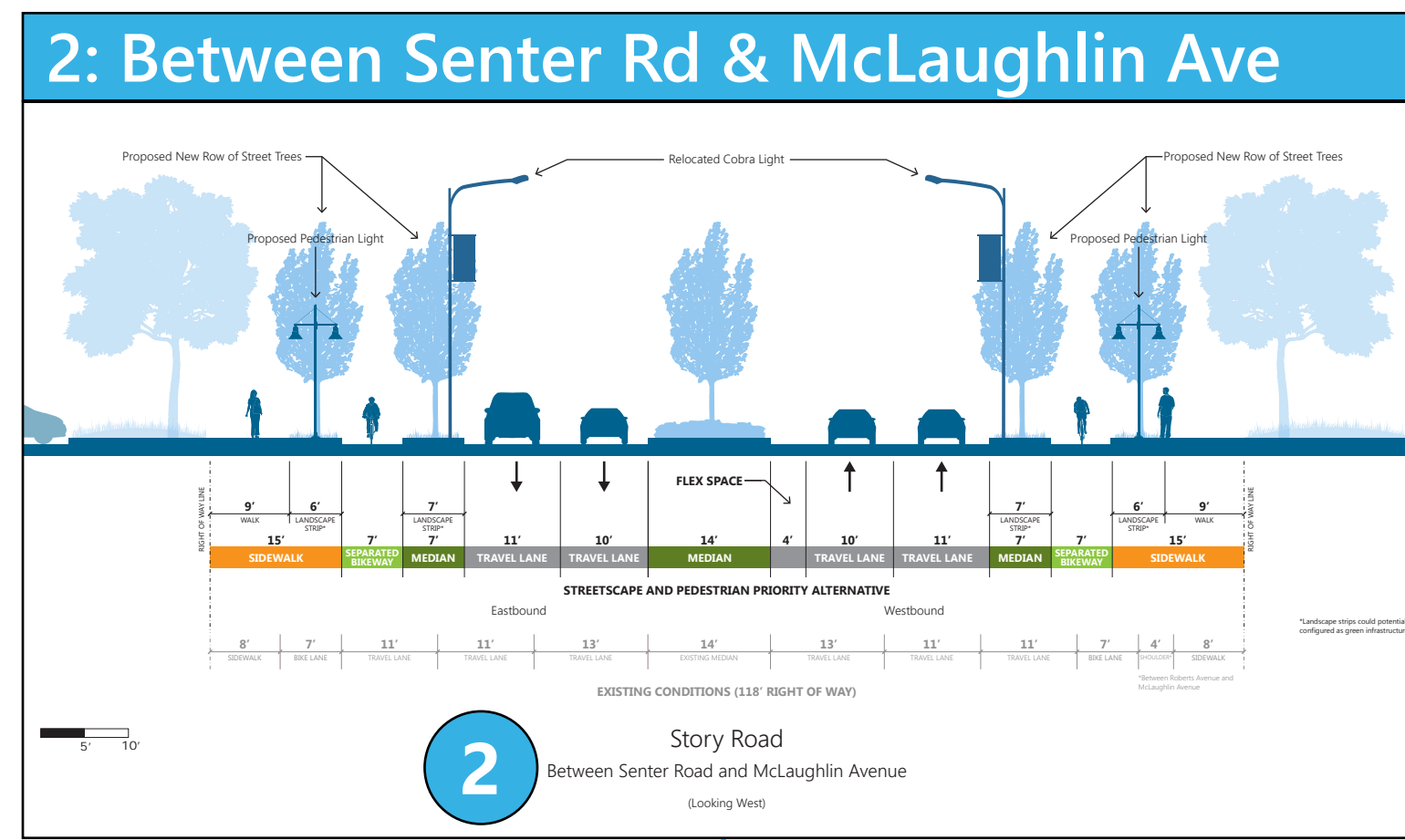
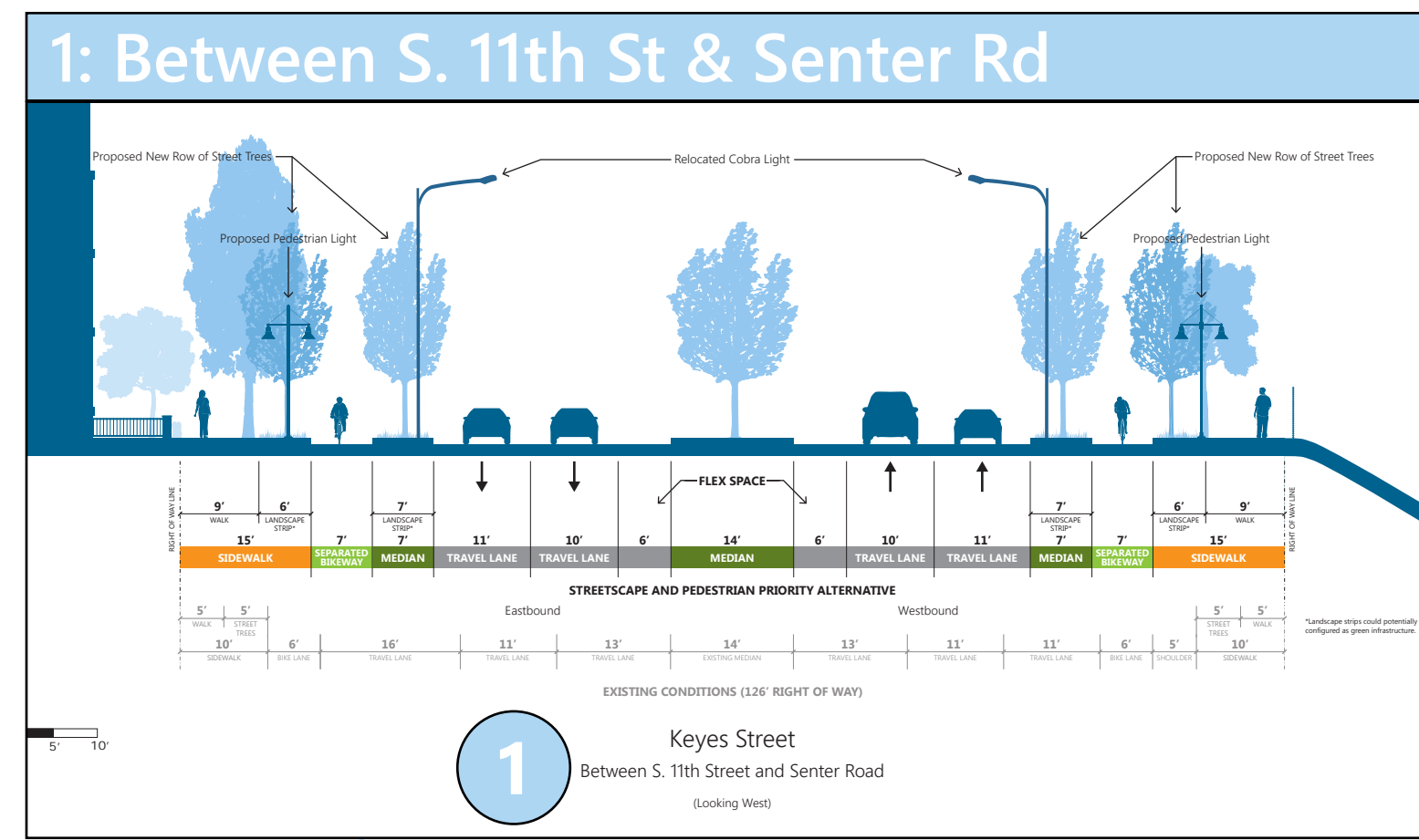


Figure 5B: Keyes Street at S 11th Street to Story Road at Knox Avenue
STREETScape AND PEDESTRIAN PRIORITY ALTERNATIVE



Draft Alternatives Assessment

The stated Study goals were used to evaluate trade-offs and opportunities between the three alternatives presented for Story Road and the two alternatives presented for Keyes Street and Goodyear Street. In addition to the Study goals, both VTA and the City identified and evaluated project feasibility as a key metric for project success—order of magnitude project cost and traffic operations feasibility are evaluated. **Table 5** provides a summary of trade-offs and benefits for each alternative based on the Study objectives.

Based on the results of the draft alternatives assessment, the **Moderate Improvements Alternative** provides major safety and comfort improvements for people who bike, because there is limited roadway width on many portions of the corridor. However, this alternative does not fully provide the same level of high-quality streetscape, safety, and comfort improvements as the Streetscape and Pedestrian Priority Alternative. The Moderate Improvements Alternative represents incremental change on the corridor rather than visionary improvements; however, it would also be more feasible to implement in the near-term.

The **Streetscape and Pedestrian Priority Alternative** provides substantial project benefits in terms of safety and comfort benefits for people who walk, bike, and take transit, but it achieves this through a lane reduction, which may increase peak hour auto travel times and delay on the corridor. More detailed evaluation of traffic conditions may be beneficial to better understand the expected change in traffic delay that would occur under this alternative. Additionally, it is likely the most expensive option due to costly capital improvements and their long-term operation and maintenance.

The **Transit Priority Alternative** provides important transit benefits and moderate safety and comfort benefits for people who walk and bike (including to transit stops); however, it too comes at the expense of potential travel time increases for people who drive. It also does not include corresponding service improvements due to anticipated modest increases in Line 25 ridership resulting from faster bus travel times; however this could be considered as a future change should increased ridership justify it.



TABLE 5: DRAFT EVALUATION OF STORY, KEYES, AND GOODYEAR ALTERNATIVES

Study Objective	Measure	Alternatives		
		Moderate Improvement	Transit Priority	Streetscape & Pedestrian Priority
1. Improve the safety, attractiveness, connectivity and speed of alternative travel options ¹	Are biking and walking facilities continuous?	+ Closes gaps in bicycle network with buffered or separated bikeways + Improve bicycle facilities reduce LTS + Sidewalk widened only where excess roadway width is substantial + Closes the sidewalk gap on Story Road but not on Keyes Street	+ Closes gaps in bicycle network with buffered or separated bikeways + Improve bicycle facilities reduce LTS + Sidewalk widened only where excess roadway width is substantial + Closes the sidewalk gap on Story Road but not on Keyes Street	+ Closes gaps in bicycle network with buffered or separated bikeways + Improve bicycle facilities reduce LTS + Opportunity to widen sidewalks and close gaps in pedestrian connectivity + Closes the sidewalk gaps on both Story Road and Keyes Street
	Are biking and walking facilities connected?	+ Minor opportunities to improve connectivity through target Vision Zero enhancements + Enhanced connection to Transit with bus stop improvement	+ Minor opportunities to improve connectivity through target Vision Zero enhancements + Enhanced connection to transit with boarding islands and bulb outs	+ Major opportunities for improved connectivity including protected intersections and improved pedestrian crossings + Bus stop enhancements improve connection to transit
	Are biking and walking facilities comfortable?	-Reduces LTS with separated or buffered bikeways + Moderate quality buffer - Few changes to existing narrow sidewalk width -Bus stop enhancements improve comfort of waiting facilities	-Reduces LTS with separated or buffered bikeways + Moderate quality buffer - Few changes to existing narrow sidewalk width -Bus stop enhancements improve comfort of waiting facilities	+ High quality landscaped buffer + Low stress, separated bikeways + Extended sidewalks and landscape opportunity areas + improved transit waiting experience with bus stop improvements
2. Encourage public involvement from vulnerable or under-represented groups that are most affected by poor street design and safety issues			*	
3. Increase the attractiveness of transit as a viable transportation option	How will bus travel times be affected?	+ Transit Signal Priority offers incremental improvements from existing conditions + Retains existing lane configuration	+ Dedicated bus lane improve travel times + Transit Signal Priority has increased benefit in combination	- Two mixed flow lanes instead of three mixed flow lanes + Transit Signal Priority provide some benefits
	How will ridership be affected?	+ Nominal improvement due to attractiveness of improve travel time	+ Nominal improvement due to attractiveness of improved travel time	+ Enhanced passenger waiting facilities may encourage increased use
	How convenient is bus service?	+ Significant bus stop improvements	+ Significant bus stop improvements and bus boarding islands	+ Significant bus stop improvements
4. Minimize Conflicts/Collisions between Drivers, Bicycles, and Pedestrians	Is safety improved for people who walk and bike?	- Reduces median refuge space + Provides moderate decrease in crossing distance on side streets with Reduce curb radii + Moderate bicycle protection from traffic	- Reduces median refuge space + Moderate decrease in crossing distance on side streets with Reduce curb radii provided + Moderate bicycle protection from traffic + Reduce bicycle and bus conflicts	+ Significant decrease in crossing distance with extended sidewalks and median refuge + Separated bikeways fully protected from traffic + Lane reduction can lower vehicle speeds
Additional Feasibility Considerations: What is the relative cost (capital and ongoing operations and maintenance)?		\$ +Spot treatments +Striped improvements +Minor sidewalk widening	\$\$ -Bus boarding islands	\$\$\$ -Landscaped improvements -Extensive sidewalk widening -Extensive landscaping and long-term operations and maintenance
Additional Feasibility Considerations: How is traffic congestion affected?		+No or limited change from existing	-Repurposes one lane of traffic in direction -Likely decrease in auto travel times +Removes bus-auto conflicts through bus lane	-Repurposes one lane of traffic in direction -Likely decrease in auto travel times

++/Dark blue = high benefit, +/middle blue is shown to have moderate or incremental benefit, -/light blue reflect no change or even a deterioration of conditions* = input to be gathered at second Community Forum in May 2017.

1. Note that safety is assessed under "Minimize Conflicts/Collisions".

2. Biking and walking facility improvements are described in the US 101 Interchange and are assumed to be the same for each Story Road alternative (e.g. sidewalk widening applies to overpass, as does bicycle facility gap closure)

3. Traffic congestion is assessed qualitatively here. Intersection level of service analysis for the corridor is beyond the scope of this Study. Specific intersection level of service analyses can be conducted as this memo is revised based on VTA and City input or as the concept plans are developed



WILLOW STREET AND GRAHAM AVENUE ALTERNATIVES

Willow Street and Graham Avenue are narrow roadways with limited opportunities for improvements between intersections: there is no excess roadway width to be repurposed (unless parking were removed – though this would not generally be appropriate given the high parking utilization on the corridor today). As a result, the proposed complete streets improvements on this portion of the corridor are primarily focused on intersections and supplemental streetscape improvements. The intersection improvements include curb extensions, more frequent and enhanced crosswalks, and bus bulbs to expand the sidewalk and passenger waiting environment. Supplemental streetscape improvements include the planting of street trees – utilizing the same species as existing – in currently empty tree wells, replacement of unhealthy or failing trees, and the addition of decorative, pedestrian-scale light fixtures – utilizing the same style and color as existing – where these are currently spaced far apart (exceeding about 50 feet). Refer to Figure 1, Figure 2A, Figure 2B, and Figure 2C for more information on these treatments.

Curb extensions are proposed at intersections to reduce crossing distances and improve visibility between drivers and pedestrians waiting to cross the street. Curb extensions allow for more streetscape amenities such as bicycle parking, benches, and trash receptacles or landscaping and green infrastructure. Improved crosswalk frequency is also proposed. Where there are bus stops on Willow Streets, the sidewalk are extended into bus bulbs to create more space for bus stop passenger amenities and passenger waiting space. These long sidewalk extensions will also provide more room for bus shelters, improve pedestrian comfort, and provide opportunities for streetscape amenities, which is important in this thriving commercial district. The pedestrian comfort benefits are particularly important as most buildings do not have setbacks, reducing the usable sidewalk width. Bus bulbs allow buses to stop in the travel lane, reducing the delay associated with buses moving into and out of traffic. The low average vehicle speeds and moderate traffic volumes of this corridor support the use of in-lane stopping.

Because Willow Street remains a busy roadway, a bicycle boulevard is proposed on Goodyear Street and Pepitone Avenue between Willow Street and Mastic Street. This will provide a low-stress, all ages and abilities alternative to Willow Street. To highlight the presence of bicyclists who prefer to ride on Willow Street, green-back sharrows are proposed to replace the existing standard sharrows. Intersection improvements that support bicycle turning movements are proposed at key bicycle network connections such 1st Street, Almaden Street, and Vine Street.



Willow Street improvements include bus bulbs, more frequent crosswalks, and curb extensions. These expansions of the pedestrian environment improve comfort and safety for pedestrians and reduce delay for buses.



Willow Street – This is a typical rendering of the improvements on Willow Street, which keep the existing travel lane configuration and dimensions. Green-back sharrows replace the typical sharrows for bicyclists. Bulb outs at intersections shorten crossing distances and provide space for streetscape amenities, such as benches and landscaping. Bus bulbs also widen the sidewalk and improve pedestrian comfort.

1: Willow St and Lick Ave - Squared Intersection

1: Willow St/Lick Ave - Roundabout

3: Graham Ave at Willow St - Squared Intersection

3: Graham Ave at Goodyear St - Squared Intersection - ALT1

3: Graham Ave at Goodyear St - Squared Intersection - ALT2



SEGMENT TOOLKIT

SEGMENT 1

SEGMENT 2

SEGMENT 3

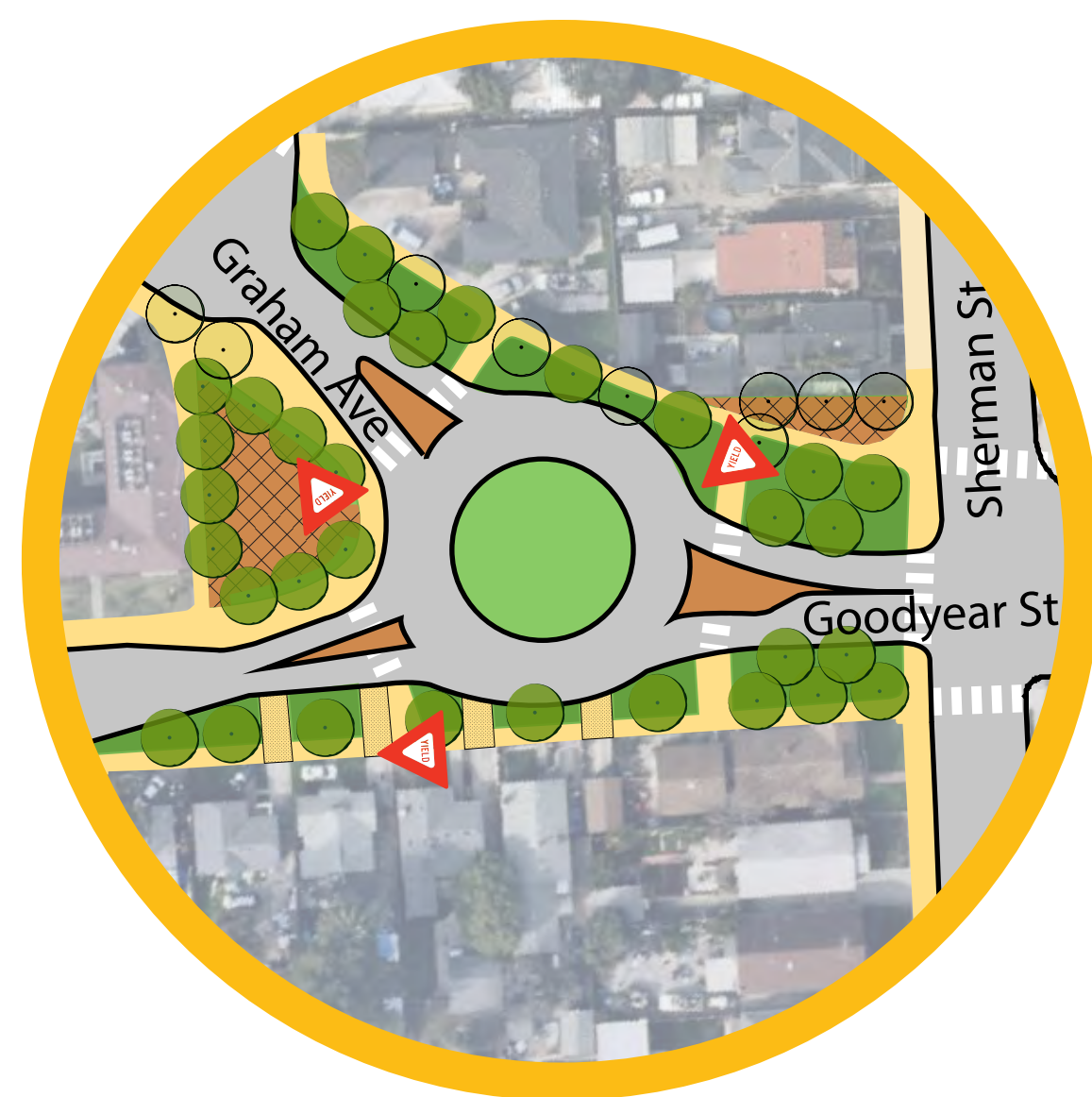


INTERSECTION TOOLKIT



3: Graham Ave at Willow St - Roundabout

3: Graham Ave at Goodyear St - Roundabout



- LEGEND**
- Existing Sidewalk
 - Proposed Sidewalk
 - Plaza - Hardscape/Landscape
 - Existing Tree
 - Proposed Tree
 - Landscape Buffer with Green Infrastructure
 - Landscape Buffer
 - Driveway

TOOLKIT

- Street Trees
- Landscape Buffer (with potential for Green Infrastructure)
- Sidewalk Widening
- Pedestrian Lighting
- Transit Only Lane
- Shared Lane
- Separated Bikeway
- Buffered Bike Lane
- Major Transit Intersection Improvements
- Minor Transit Intersection Improvements
- Major Bus Stop Intersection Improvements
- Minor Bus Stop Intersection Improvements
- Major Bicycle Intersection Improvements
- Minor Bicycle Intersection Improvements
- Major Pedestrian Intersection Improvements
- Minor Pedestrian Intersection Improvements

Figure 6: Willow Street at SR 87 to Graham Avenue at Goodyear Street SQUARED INTERSECTION and ROUNDABOUT CONCEPTS



Complex Intersections

There are three complex intersections on the corridor presenting opportunities to improve safety for all modes: Willow Street/Lick Avenue, Willow Street/Graham Avenue, and Graham Avenue/Goodyear Street. The intersection redesign alternatives also present opportunities to provide welcoming gateways to the Calle Willow neighborhood. There are two potential design alternatives for these intersections:

- **Roundabout Alternative:** This would convert each complex intersection to single-lane roundabouts, which would provide for continuous movement of traffic and improve bicycle and pedestrian safety.
- **Square-Up Intersection Alternative:** This would create compact three-way intersections at each location and provide substantial space for pocket parks/plazas at each of the three locations.

Figure 6 presents the two alternatives for the complex intersections. In both options, commercial and residential driveways are maintained, but the driveways are reconfigured.

Roundabout Alternative

The Roundabout Alternative proposes single-lane roundabouts for the Goodyear Street/Graham Avenue and Graham Avenue/Willow Street intersections. A roundabout is a circular intersection with a large circular island in the center that allows traffic to flow continuously from each side street, yielding to traffic already in the intersection. Single-lane roundabouts improve circulation and safety for bicyclists and pedestrians, and keep traffic flowing through the area. In particular, this removes the two left-turns Line 25 needs to make, including the sometimes difficult northbound left-turn from Graham Avenue onto Willow Street. At Willow Street/Graham Avenue and Graham Avenue/Goodyear Street, driveways fronting the roundabout create conflict points that may reduce speeds through the roundabouts. Preliminary ideas about how to address driveway conflicts are shown on Figure 6. In the roundabout option, excess roadway space from the large, complex intersections is taken up with the circular island in the middle of the roundabout. This can create opportunities for gateway features or public art, but is not usable public or park space.

At the Willow Street/Lick Avenue intersection, a roundabout has the potential to significantly reduce vehicle speeds as autos enter the Calle Willow area through the SR 87 underpass. This can improve safety for all modes while creating a gateway and community identity for the neighborhood. This



is also an important connection point to the Tamien light rail station and future transit-oriented development.

Alt 2 Square-Up Complex Intersections

The Square-Up Complex Intersection Alternative creates compact three-way intersections. At Willow Street/Graham Avenue and Graham Avenue/Goodyear Street, driveways fronting the plaza/pocket park areas will need to be maintained. Differentiated pavement materials, landscaping, and similar treatments can be used to designate the extension of the driveway through the plazas, as shown on Figure 2. Driveway curb cuts and designated paths of auto travel can be provided through this plaza space, as shown on Figure 2, and can also use more decorative material to differentiate the driveway pavement from the concrete sidewalk. Another option is to provide a short frontage road to maintain access to the residences on Graham Avenue, and to accommodate the frequency of driveway curb cuts. Compared with the roundabout alternative, this alternative maximizes opportunities for new public space, streetscape, and gateway improvements. This includes opportunities for pocket parks/plazas at all three intersections.

Alternatives Assessment

Table 6 presents the draft evaluation of the two intersection redesign alternatives. Both alternatives perform strongly in terms of benefits for all modes of travel. They both greatly benefit transit and east-west auto travel times through the corridor, particularly with the improvements at Willow Street/Graham Avenue and Graham Avenue/Goodyear Street. This is particularly helpful in removing the northbound left-turn at Willow Street/Graham Avenue, a difficult turn for buses to make during peak commute hours. The alternatives also have substantial benefits for bicyclists and pedestrian safety and comfort, creating continuous walking and biking environments and clearer expectations between drivers and people who walk and bike. This is primarily accomplished through the removal of the right-turn slip lanes that can create difficult crossing and merging movements for pedestrians and bicyclists, respectively. Right-turn slip lanes allow for yield-control or uncontrolled right-turn movements at intersections.

One potential drawback to the Roundabout Alternative is it requires bicyclists to merge into the auto travel lane and share the roundabout vehicle lane. For less experienced bicyclists this may be a difficult maneuver and a deterrent to riding on Willow Street. While the roundabout can be designed with "escape ramps" that allow bicyclists to access the sidewalk, this would increase



bicycle riding on the sidewalk near a commercial district, and may negatively impact pedestrian comfort.

A potential benefit of the Squared-Up Intersection Alternative option is it has great opportunities for enhancing the public realm. Excess roadway space is allocated to the sidewalk and can create public plazas and pocket parks along the corridor. In the Roundabout Alternative, most of the excess roadway space is stored in the roundabout itself, creating opportunities for art or other gateway features but providing fewer public space opportunities. Curb extensions to slow the speeds of cars entering the roundabout can provide streetscape amenities, green infrastructure, and landscaping opportunities to enhance the urban realm.

TABLE 6: EVALUATION OF WILLOW STREET AND GRAHAM AVENUE COMPLEX INTERSECTION ALTERNATIVES

Study Objective	Measure	Alternatives	
		Roundabout	Square-Up
1. Improve the safety, attractiveness, connectivity and speed of alternative travel options ¹	Are biking and walking facilities continuous?	-Shared lane between bicyclists and autos through roundabout +Continuous sidewalk environment	+Separated space for bicyclists and autos where bicycle lanes or separated bikeways are already provided +Continuous sidewalk environment
	Are biking and walking facilities connected?	-Shared lane between bicyclists and autos through roundabout +Improves the connection to adjacent bikeways and sidewalks	+Separated space for bicyclists and autos where bicycle lanes or separated bikeways are already provided +Improves the connection to adjacent bikeways and sidewalks



TABLE 6: EVALUATION OF WILLOW STREET AND GRAHAM AVENUE COMPLEX INTERSECTION ALTERNATIVES

Study Objective	Measure	Alternatives	
		Roundabout	Square-Up
	Are biking and walking facilities comfortable?	-Shared lane between bicyclists and autos through roundabout +Short pedestrian crossing distances +May require crosswalk enhancements if continuous streams of auto do not yield to pedestrians -Stores space in roundabouts, which can provide gateways but are not active public spaces	+Separated space for bicyclists and autos where bicycle lanes or separated bikeways are already provided +Short pedestrian crossing distances +May require crosswalk enhancements if continuous streams of auto do not yield to pedestrians, depending on proposed traffic control +Provides more opportunities for public spaces and plazas adjacent to businesses and sidewalks
2. Encourage public involvement from vulnerable or under-represented groups that are most affected by poor street design and safety issues			*
3. Increase the attractiveness of transit as a viable transportation option	How will bus travel times be affected?	+Improves bus flow and remove difficult turning movements +Improve vehicle flow east-west, which improve travel time for all vehicles	+Improves bus flow and remove difficult turning movements +Improve vehicle flow east-west, which improve travel time for all vehicles
	How will ridership be affected?	-No change from alternative	-No change from alternative
	How convenient is bus service?	-No change from alternative	-No change from alternative



TABLE 6: EVALUATION OF WILLOW STREET AND GRAHAM AVENUE COMPLEX INTERSECTION ALTERNATIVES

Study Objective	Measure	Alternatives	
		Roundabout	Square-Up
4. Minimize Conflicts/Collisions between Drivers, Bicycles, and Pedestrians	Is safety improved for people who walk and bike?	+Clearer expectations between drivers and pedestrians and drivers and bicyclists +Reduced pedestrian crossing distances -Shared lane for bicyclists through roundabout + Research shows that roundabouts typically have higher safety performance than typical intersections +Reduced speed with roundabouts helps to decrease injury severity when collisions do occur	+Clearer expectations between drivers and pedestrians and drivers and bicyclists +Reduced pedestrian crossing distances -T intersections may encourage through traffic to travel faster without stop signs or other traffic control, which may increase traffic speed
Additional Feasibility Considerations: What is the relative cost?		\$\$ -Costly intersection reconstruction	\$\$ -Costly intersection reconstruction
Additional Feasibility Considerations: How is traffic congestion affected?		+Improves traffic flow through area +Improves travel time while maintaining a slower speed of traffic	+Improves traffic flow through area +Improves travel time while maintaining a faster speed of traffic ¹

* = input to be gathered at second Community Forum in May 2017.

1. Further study should include if traffic calming and/or additional traffic control is needed under this alternative.

US 101 Interchange and SR 87 Underpass

Two freeways intersect the corridor – one as a large interchange at Story Road and US 101 and the other as an overpass at SR 87 at Willow Street. Potential improvements are considered for each of these sections of the corridor.

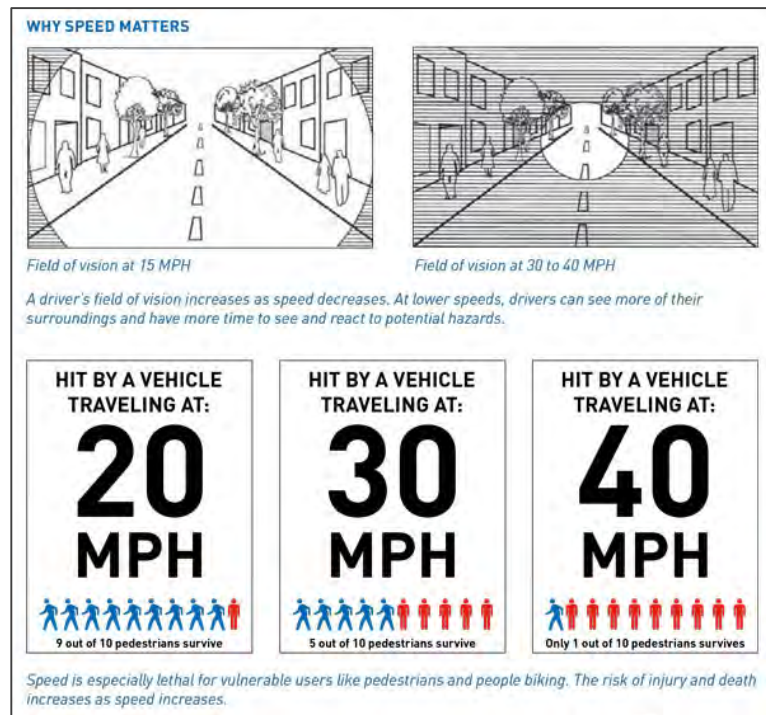
US 101 Interchange

The US 101 Interchange with Story Road has a traditional cloverleaf-style design where freeway on- and off-ramps merge with Story Road as uncontrolled movements. This results in high vehicle



speeds entering and exiting the freeway from Story Road. Because this interchange does not currently have other proposals for improvements in adopted planning documents, the focus is on near-term improvements that could be made within the existing interchange configuration.

The focus of the improvements is on improving safety for people who walk and bike while maintaining good regional access. To do so, squaring-up the on- and off-ramps is proposed in the near-term. Today, average vehicle speeds of the ramps are high, which creates difficult pedestrian and ramp crossings. Reducing the speed at which vehicles can enter/exit the roadway by squaring up the angle at which the ramp intersects Story Road would improve bicycle and pedestrian comfort and safety in the interchange area. **Figure 7** conceptually illustrates how

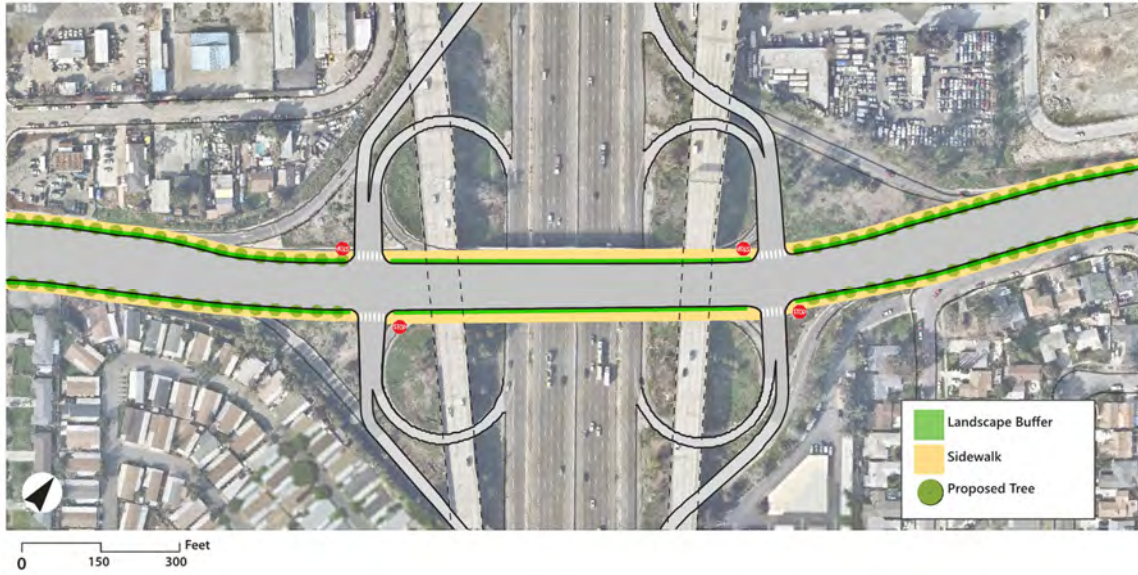


Lowering speeds a highway on and off ramps can be one of the most impactful improvements relative to proactive bicycle and pedestrian safety, as shown in the image above from the League of American Bicyclists.

the ramps could be squared up in the near-term at the US 101 Interchange. This likely requires some regrading around the ramp area, though it would not likely require costly modifications to any bridge structures. Specific civil engineering feasibility considerations will be explored through the conceptual design drawings. The proposed squaring-up the on- and off-ramps should include improved lighting of the sidewalk and crosswalks through the area of the interchange. This could be achieved through modification of the existing roadway (cobra) fixtures to add pedestrian-scale lighting fixtures.



Figure 7: US-101 Concept





Long Term Improvement Options

In the long-term, while there are no current plans to reconfigure this interchange, two potential alternatives could be considered as VTA, the City of San José, and Caltrans look to improvements at this location in the future:

- **Partial Clover Leaf Alternative:** This option could have several design variations: one option could shift all ramp access to one side of the roadway and create two new intersections with signals to provide freeway access. This would slow speeds of turning vehicles to mitigate bicycle/pedestrian conflicts and consolidate all conflicts to one side of the roadway. With this alternative, providing a two-way separated bikeway on the opposite side of the street from the ramps could be considered as one option for improving bicycle access.

- **Diverging Diamond Interchange (DDI):** DDI is a configuration designed to improve operational efficiency and reduce the number of conflict points. The Story Road east-west traffic crosses to the opposite side of the roadway, allowing for the creation of two phase signals. This can shorten pedestrian crossing distances, but may involve more complex or circuitous bicycle and pedestrian circulation.



*Example DDI interchange Source:
www.divergingdiamond.com*

SR 87 Underpass

While SR 87 is grade-separated from Willow Street, personal security concerns and creating a stronger streetscape and pedestrian connection between neighborhoods west of SR 87 and Calle Willow are important. Willow Street at SR 87 has a wide cross-section that allows for the installation of a six-foot sidewalk on the north side of the street in addition to five-foot bicycle lanes in both directions. Given limited development on the north side of the street, separated bikeways could also be installed as a near-term improvement if sidewalk on the north side of the street is less of a priority. This area also has the opportunity for a gateway treatment welcoming people to Calle Willow, which could be done through art and lighting installations under SR 87 and the adjacent



railroad trestle. Where the SR 87 bicycle path intersects Willow Street, a curb cut is already provided. This could be enhanced with a median refuge and bicycle left-turn pocket to support bicyclists turning onto and off of the path.

Alternatives Evaluation

As summarized in **Table 7**, both sets of improvements create high levels of access improvements.

TABLE 7: POTENTIAL MEASURES OF EFFECTIVENESS SUMMARY

Study Objective	Proposal Evaluation
5. Improve access over major barriers such as US 101 and State Route 87	+ Speeds reduced through “Squared Up” intersection design at US 101 Interchange, which greatly improves bicycle and pedestrian safety as well as driver safety + Safety and access improvements through closing the sidewalk gap on the north side of Willow Street. In the interim, separated bikeways could be installed in the excess roadway width on Willow Street between Minnesota Avenue and Lick Avenue underneath SR 87 +Calle Willow gateway art/light installation underneath SR 87 +Install pedestrian-scale lighting in both locations

NEXT STEPS

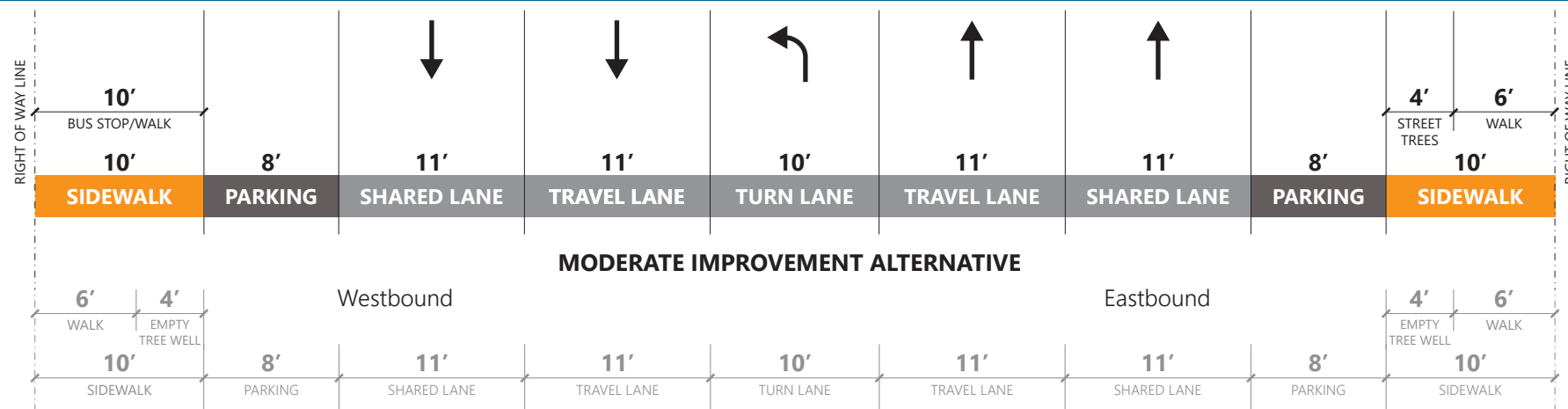
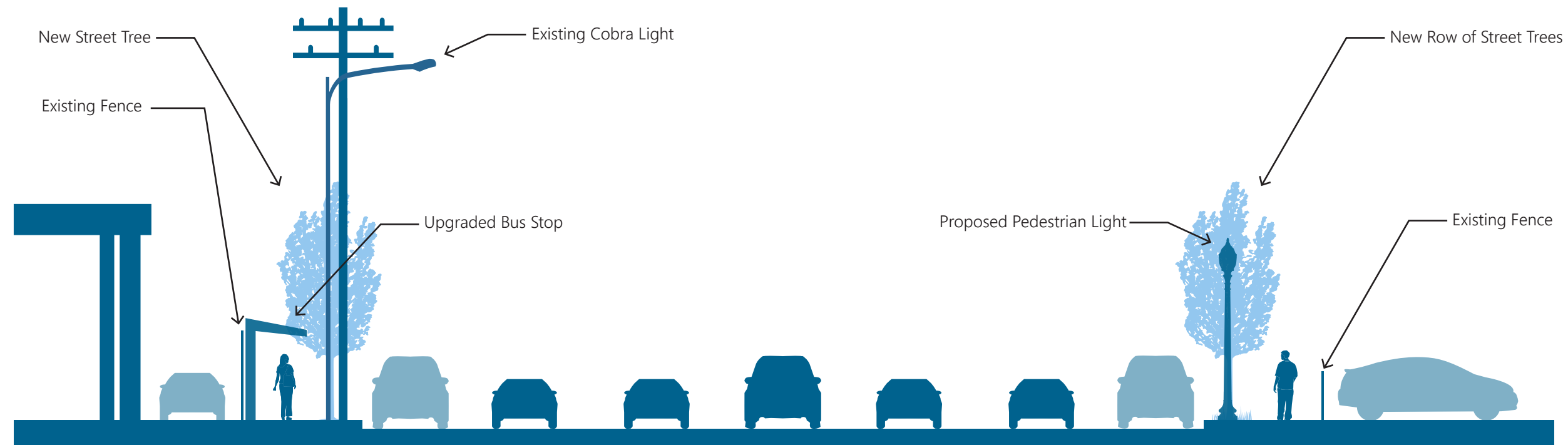
The first step is for VTA and the City of San José to review the content of this memorandum and provide feedback on technical details and how to best present each alternative. The draft evaluation assessments presented in this memo are intended to assist both parties in determining the kinds of trade-offs and criteria that could be weighed in the selection of the preferred alternative, as compared to the objectives of the Study. Feedback on the memorandum will be incorporated and used to inform how these proposals are presented to the public at the second Community Forum as well as to technical stakeholders at the Design Workshop. With that community and additional technical stakeholder input, VTA and the City can explore the three alternatives in order to weigh which option is most viable and best meets the needs of the community. This will result in the selection of a preferred alternative, which will be developed as concept plans in CAD at the culmination through this Study. The next steps are:



- **Technical stakeholder feedback on this memorandum:** VTA and City of San José expert feedback is critical to refining these three alternatives before they are presented to the public at the May 2017 second Community Forum. These changes will be incorporated into the information presented at the second Community Forum (to be held in May 2017). Critical to this feedback is how to best tell the story to the public of these improvements and their potential benefits and trade-offs. How do VTA and the City want to see each alternative presented? What is the best story to tell about each alternative and its trade-offs and benefits?
- **Community input on each alternative:** Once the three alternatives have been finalized with VTA and City input, this information will be presented to the public at the May 2017 second Community Forum. The purpose of this meeting is to present each project alternative, answer questions, provide information, and to work with the public to understand what a community-based preferred alternative may be. The outcome of this meeting will be a sense of how the community values the trade-offs and weighs the pros and cons presented in this memorandum.
- **Additional technical stakeholder feedback on each alternative:** After the second Community Forum, technical stakeholders will be invited to discuss and charrette each of the three alternatives at the Design Workshop. This will be informed by community input and allow for further exploration of each concept using a diverse set of technical experts.
- **Selection of preferred alternative:** Once the Design Workshop and second Community Forum are complete, VTA and the City will identify which of three alternatives (or some combination thereof) will be developed for concept drawings and preliminary cost estimates. This decision making framework should be consistent with the project goals and weigh community interest in addition to both agency's abilities to fund and implement the preferred alternative. Considerations of project phasing and high priority improvements will be important to discuss in making this decision such that area of emphasis and consideration of how to stage the project in the near-term are addressed.

**APPENDIX A: STORY ROAD, KEYES STREET, AND GOODYEAR
STREET MODERATE IMPROVEMENTS ALTERNATIVE CROSS-
SECTIONS**

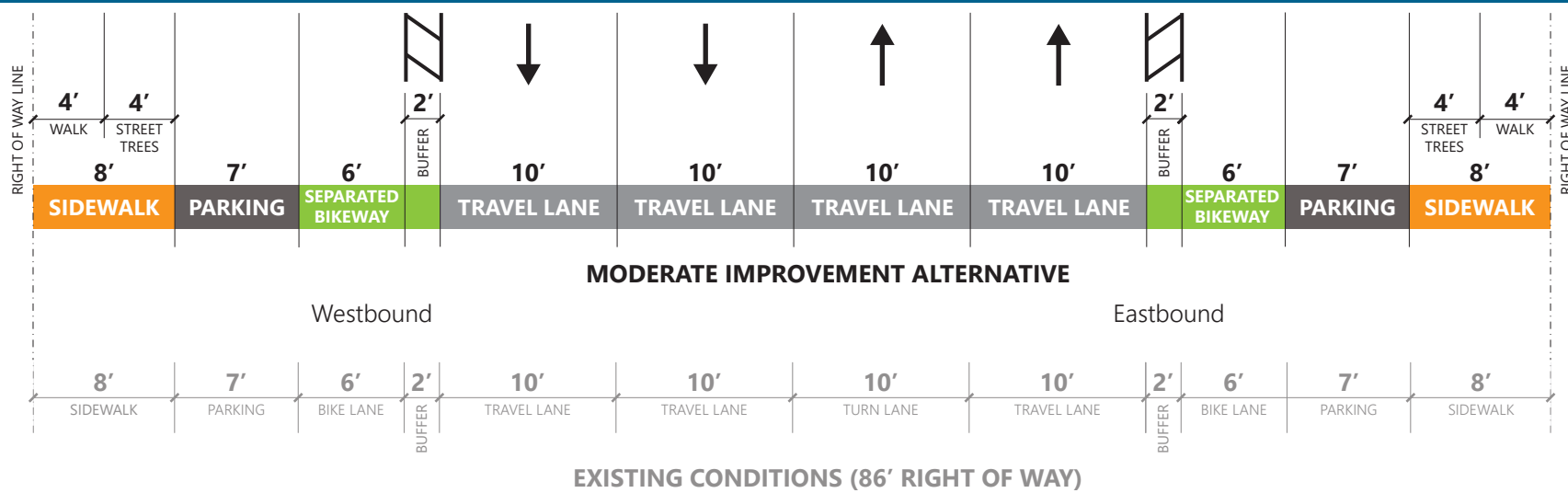
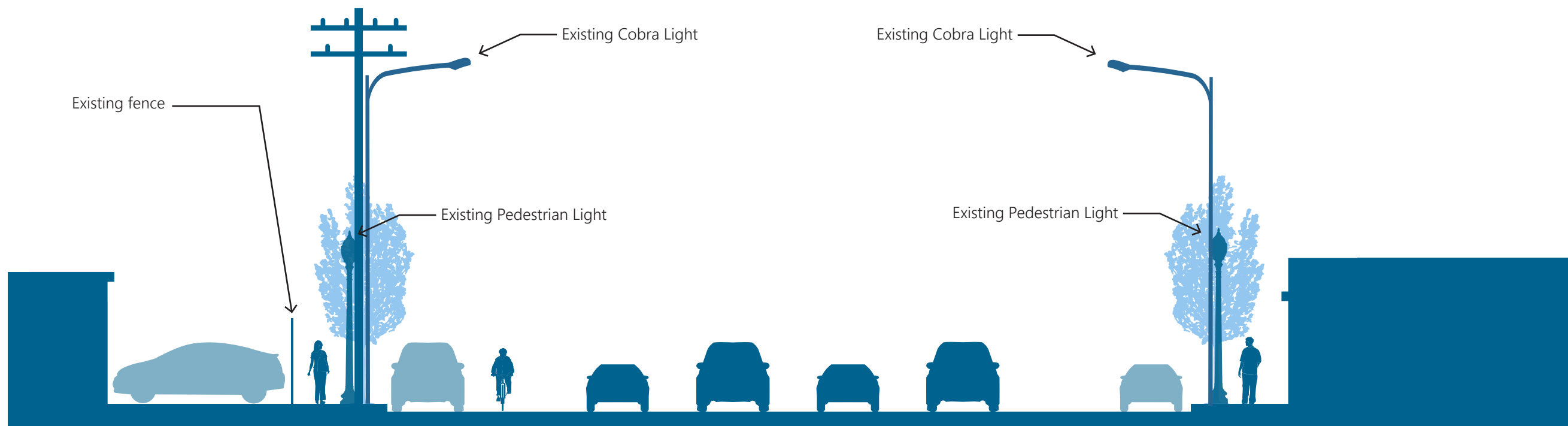




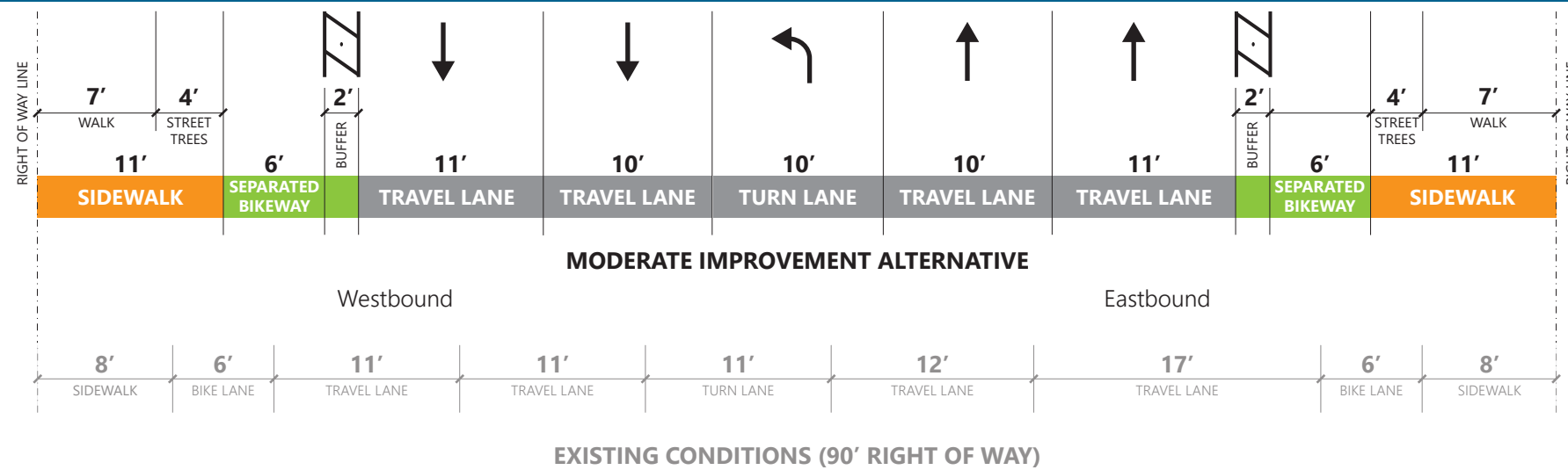
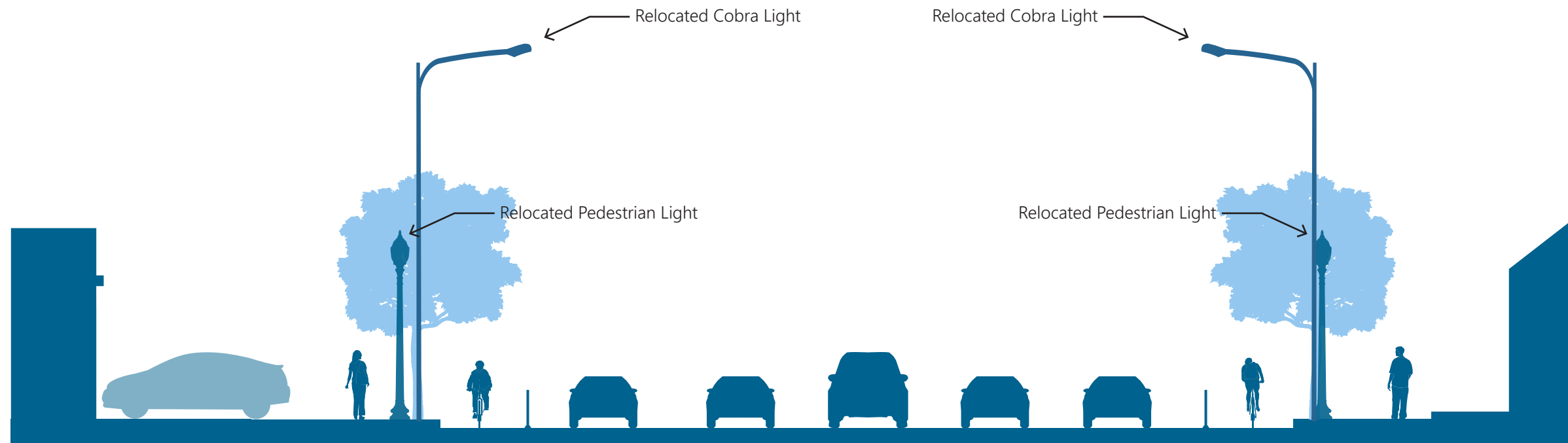
EXISTING CONDITIONS (90' RIGHT OF WAY)



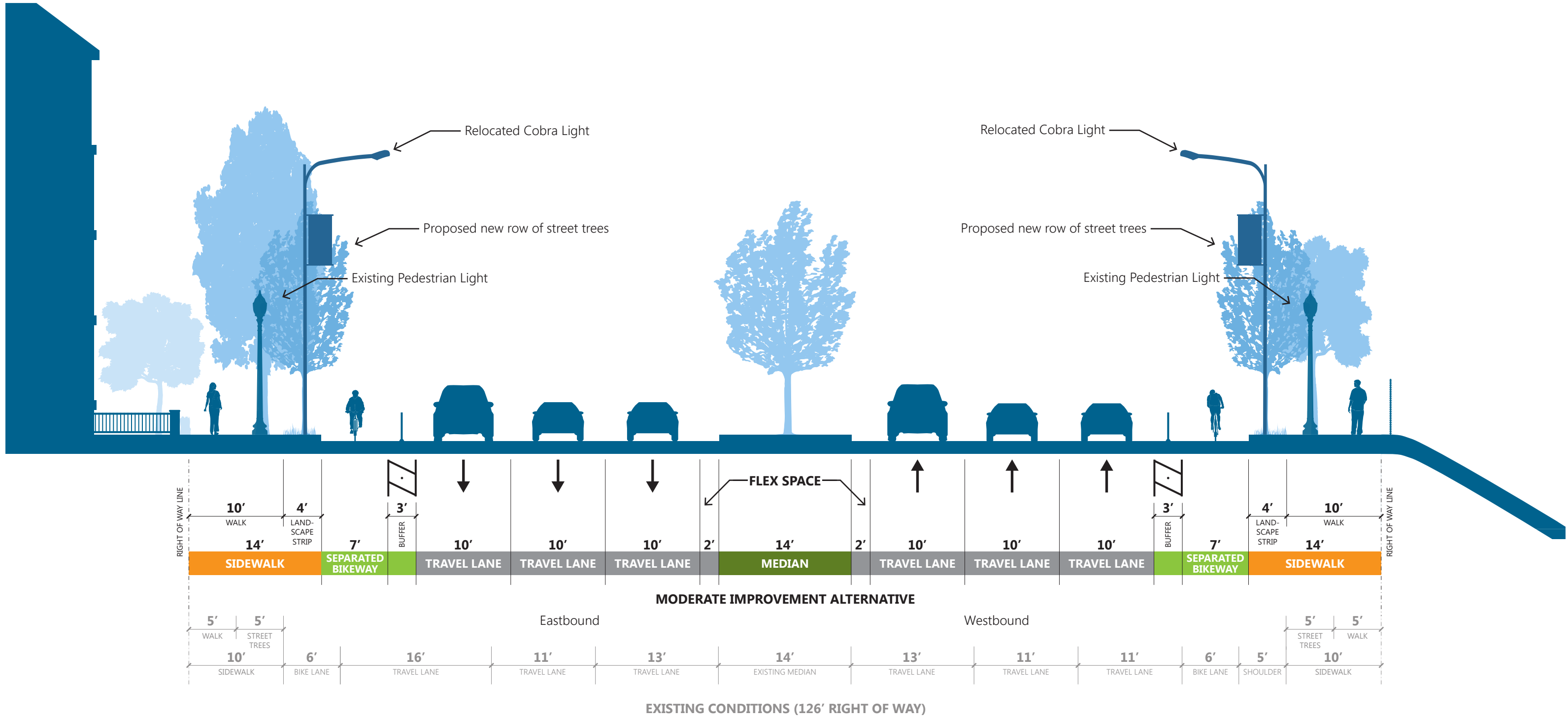
Goodyear Street
 Between Graham Avenue and S. 1st Street
 (Looking East)



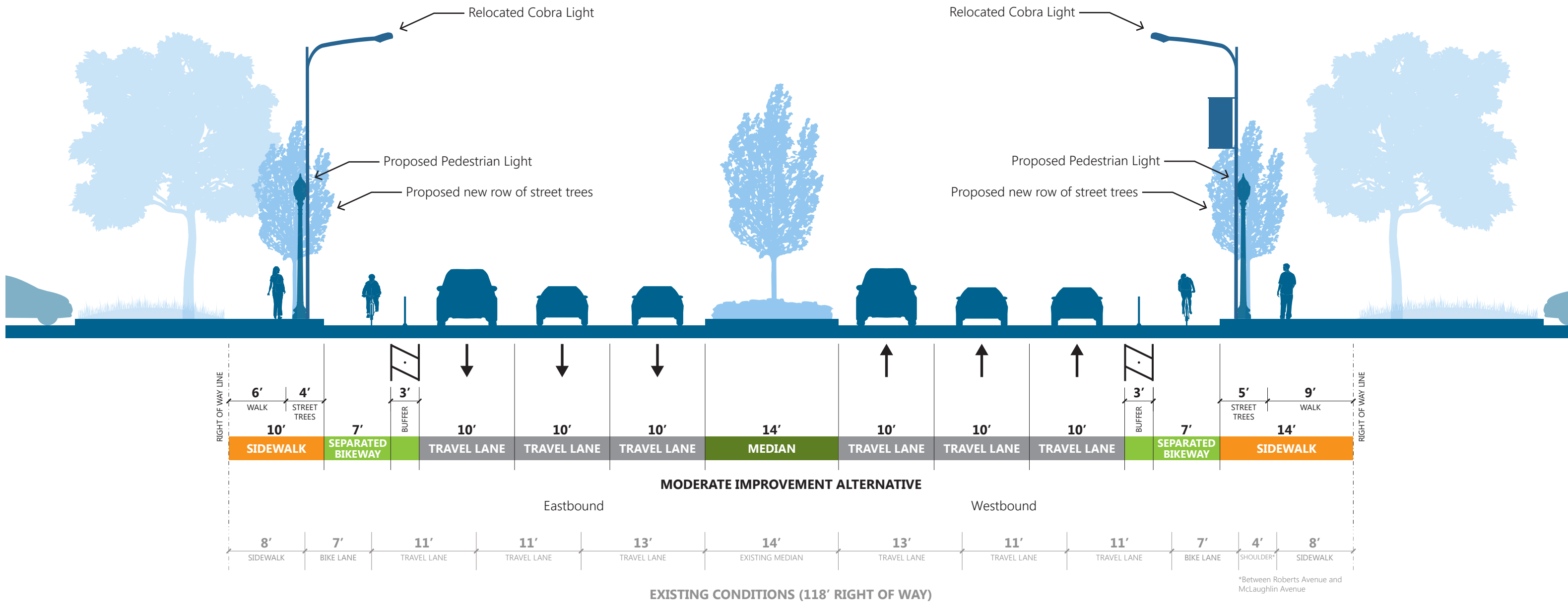
Keyes Street
 Between S. 1st Street and S. 10th Street
 (Looking East)



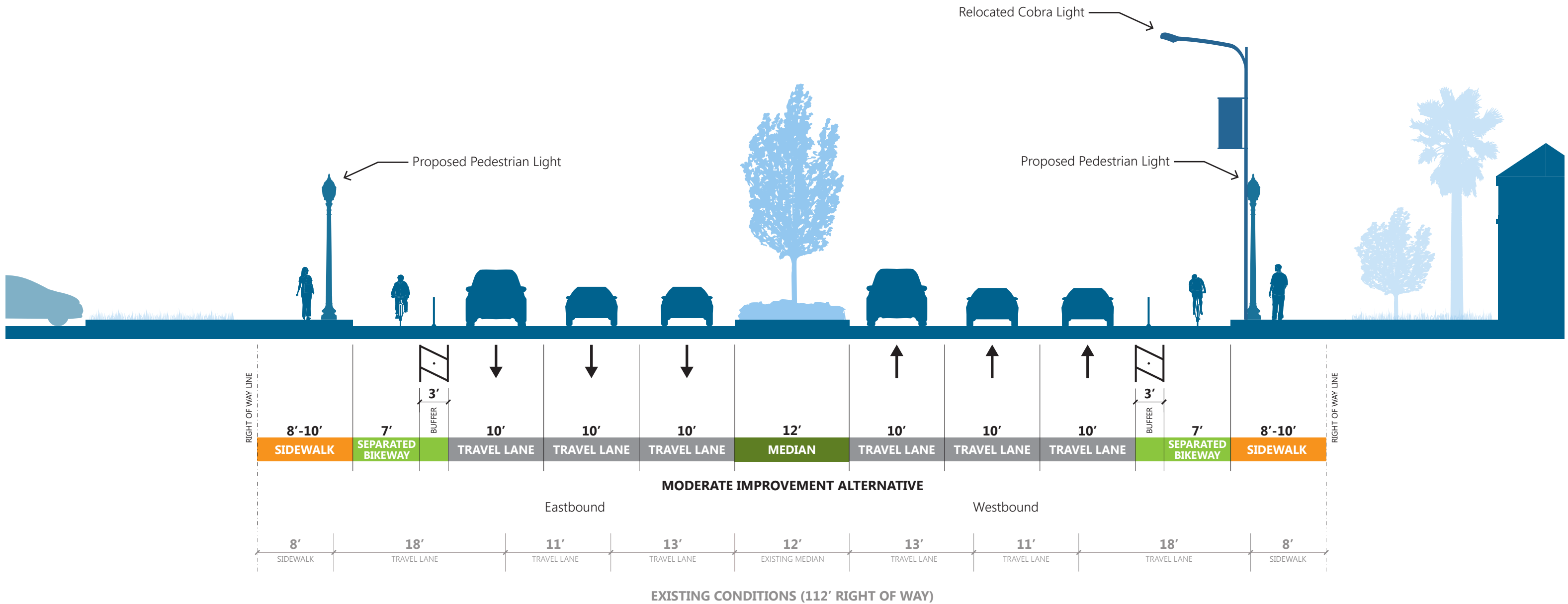
Keyes Street
 Between S. 10th Street and S. 11th Street
 (Looking East)



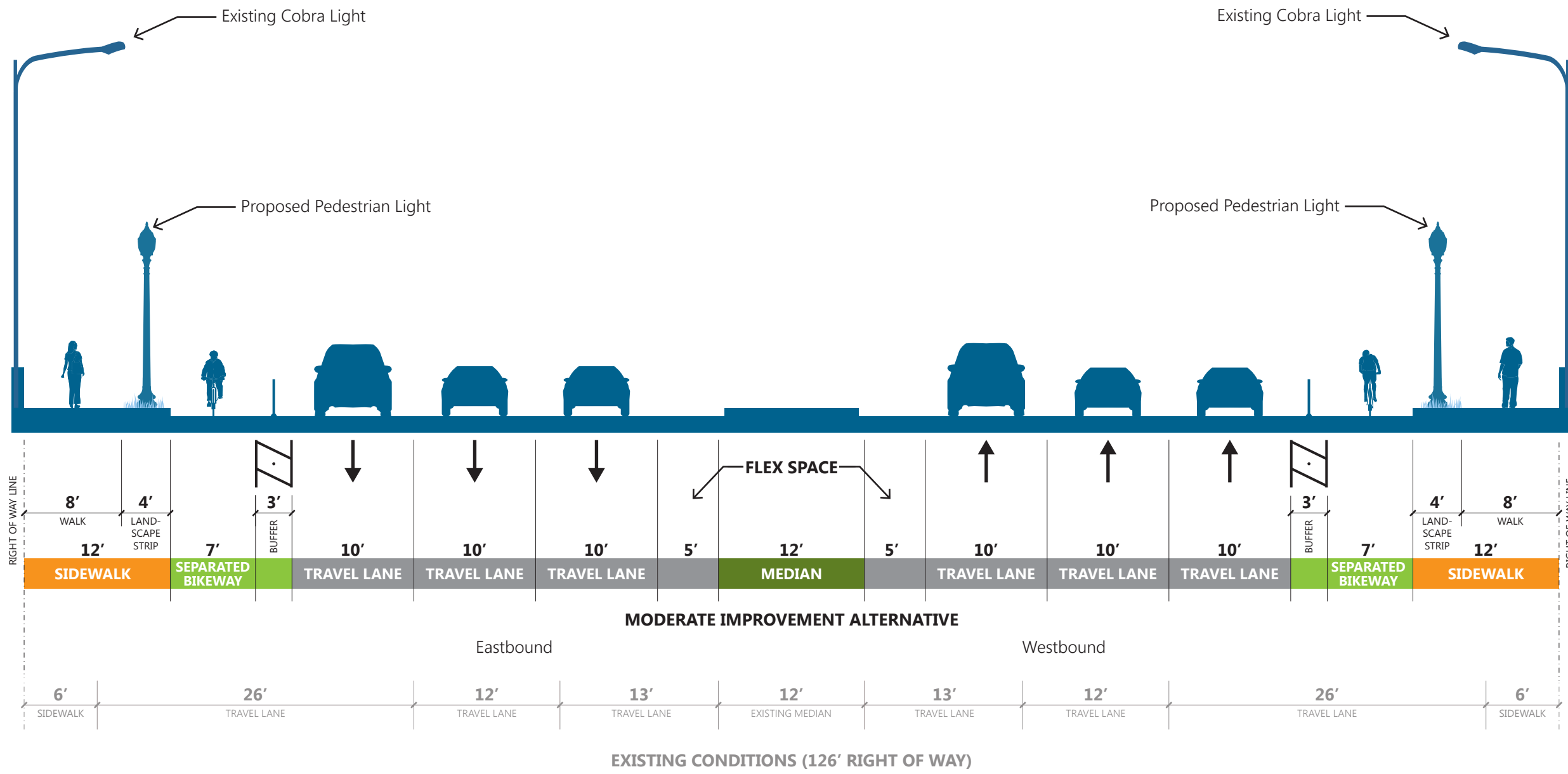
Keyes Street
 Between S. 11th Street and Senter Road
 (Looking West)



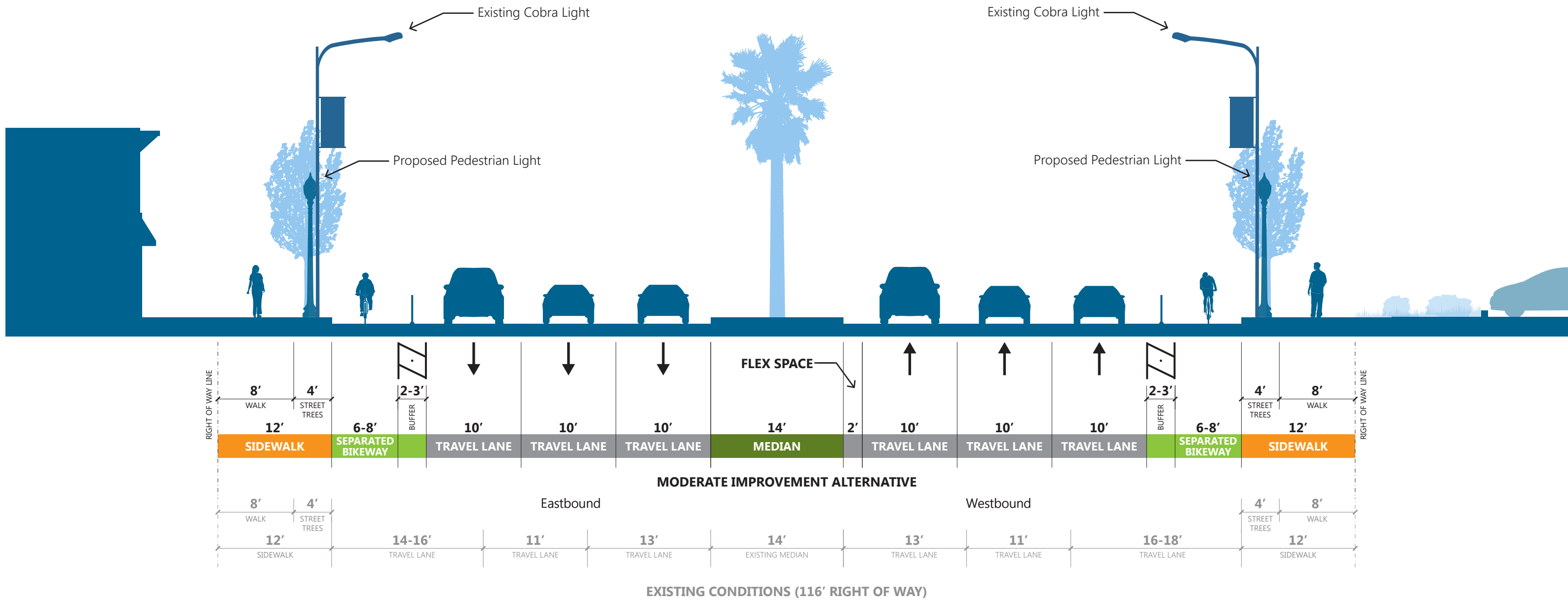
Story Road
 Between Senter Road and McLaughlin Avenue
 (Looking West)



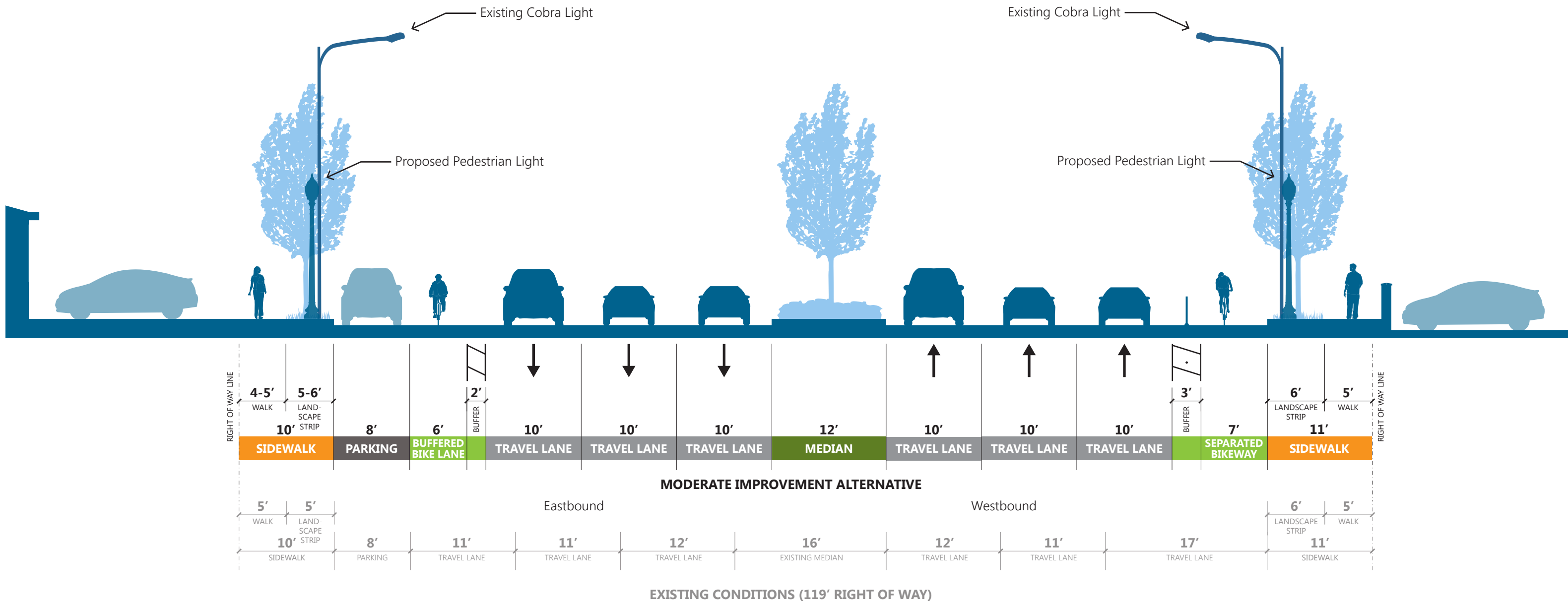
Story Road
 Between McLaughlin Avenue and Via Ferrari/Felipe Avenue
 (Looking West)



Story Road
 Highway 101 Interchange
 (Looking West)



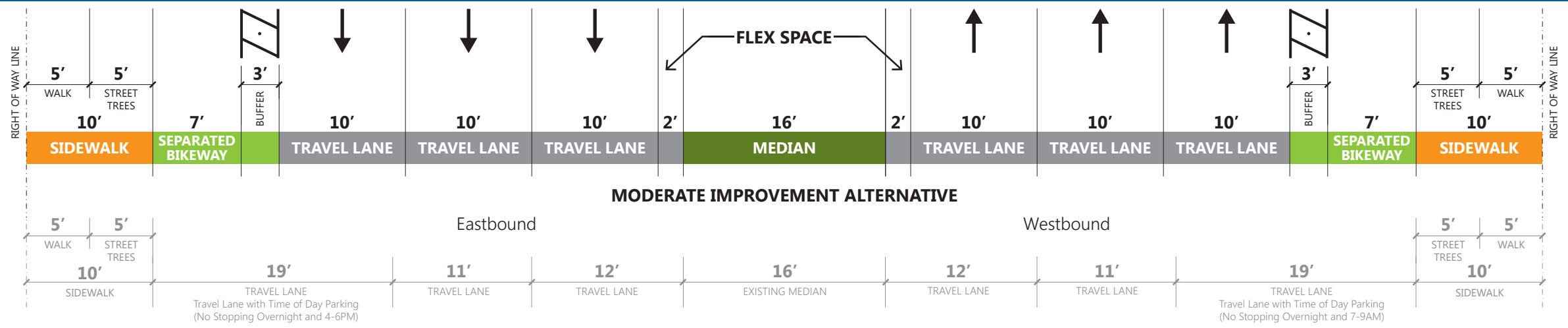
Story Road
 Between Knox Avenue and McCreery Avenue/Bal Harbor Way
 (Looking West)



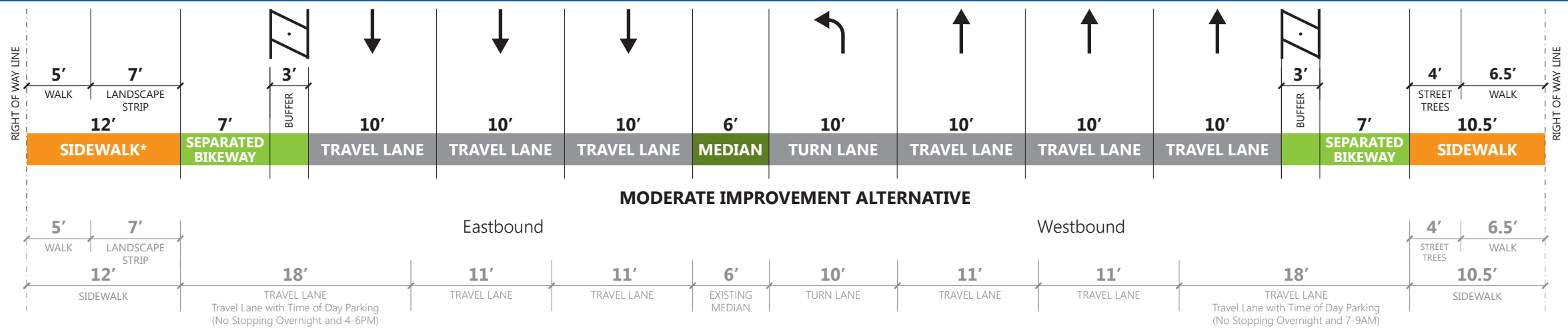
Story Road

Between McCreery Avenue/Bal Harbor Way and Sunset Avenue

(Looking West)



Story Road
Between Sunset Avenue and Adrian Way
(Looking West)



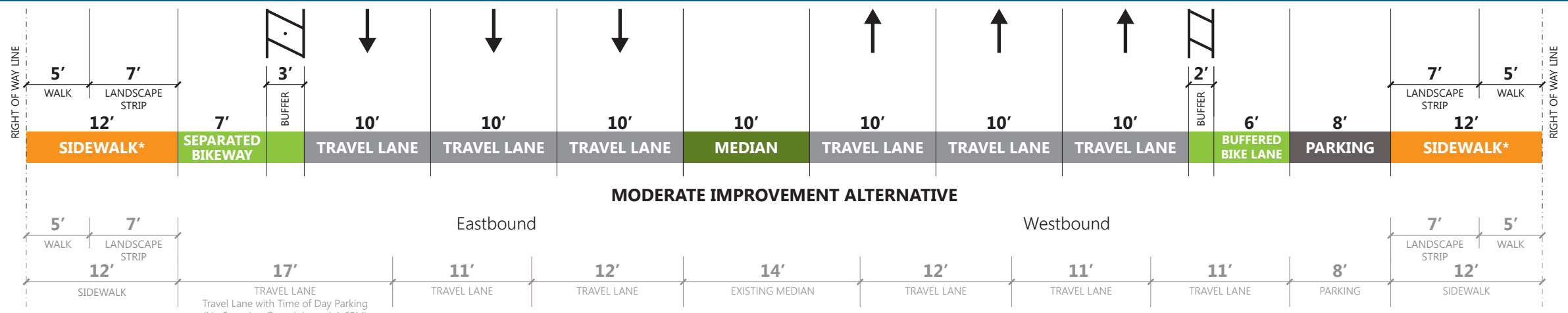
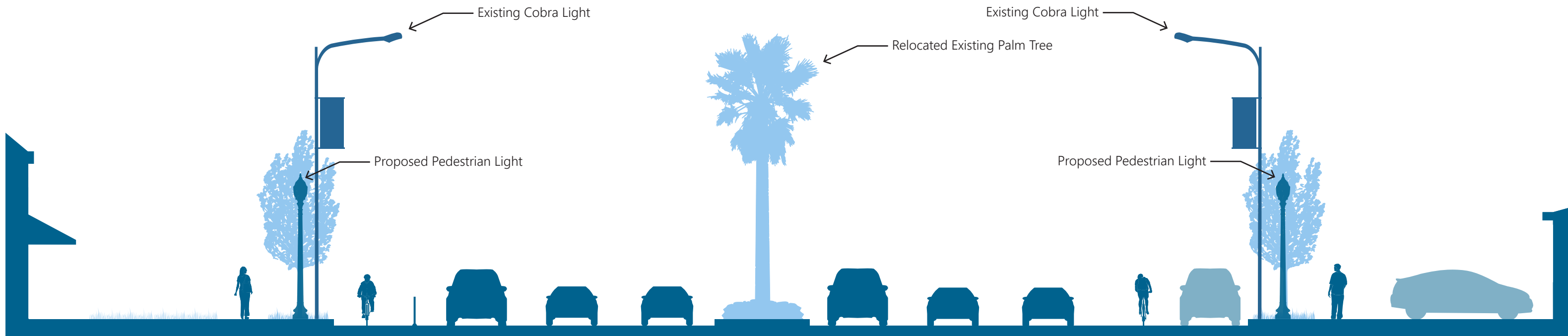
*The sidewalk maybe reconfigured as 7' walk with 5' landscape strip. However, this would impact the existing row of trees.



Story Road

Between Adrian Way and S. Jackson Avenue

(Looking West)



*The sidewalk maybe reconfigured as 7' walk with 5' landscape strip. However, this would impact the existing row of trees.



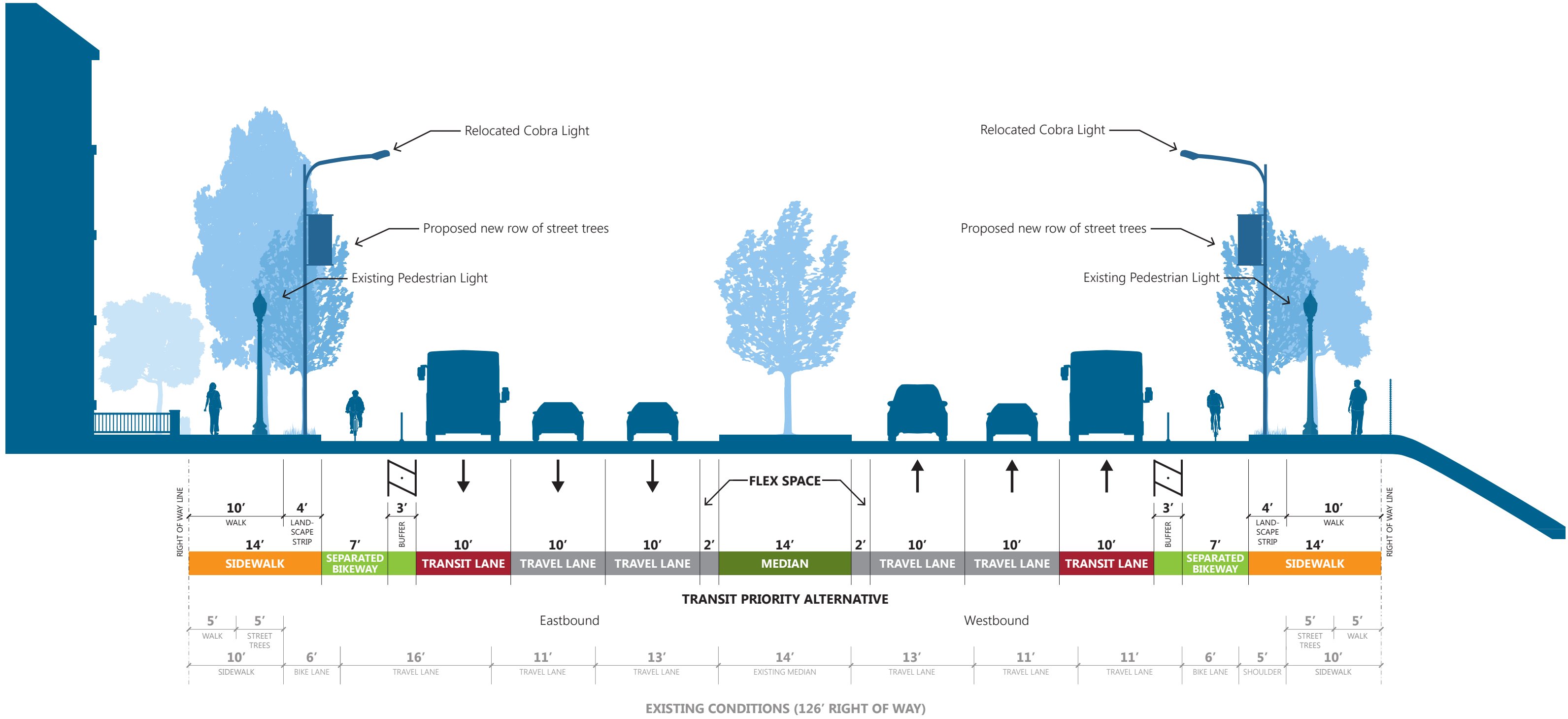
Story Road

Between S. Jackson Avenue and Capitol Expressway

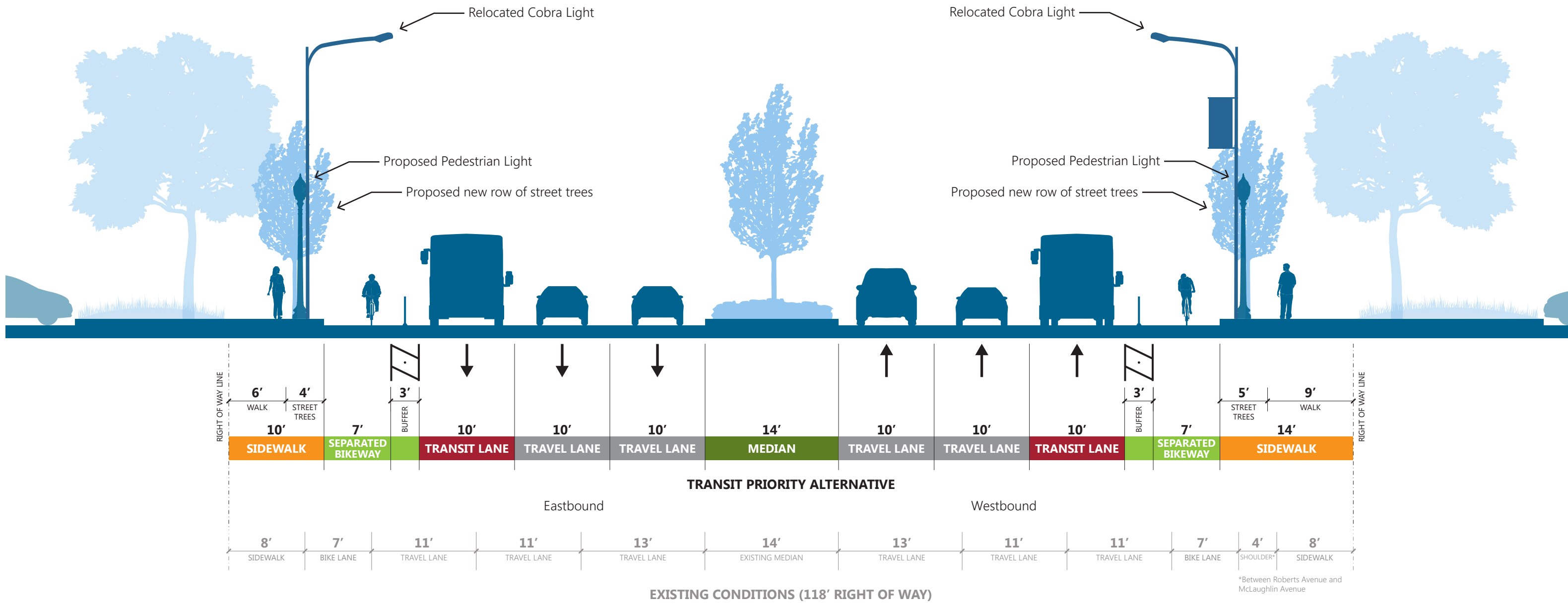
(Looking West)

**APPENDIX B: STORY ROAD, KEYES STREET, AND GOODYEAR
STREET TRANSIT PRIORITY ALTERNATIVE CROSS-SECTIONS**

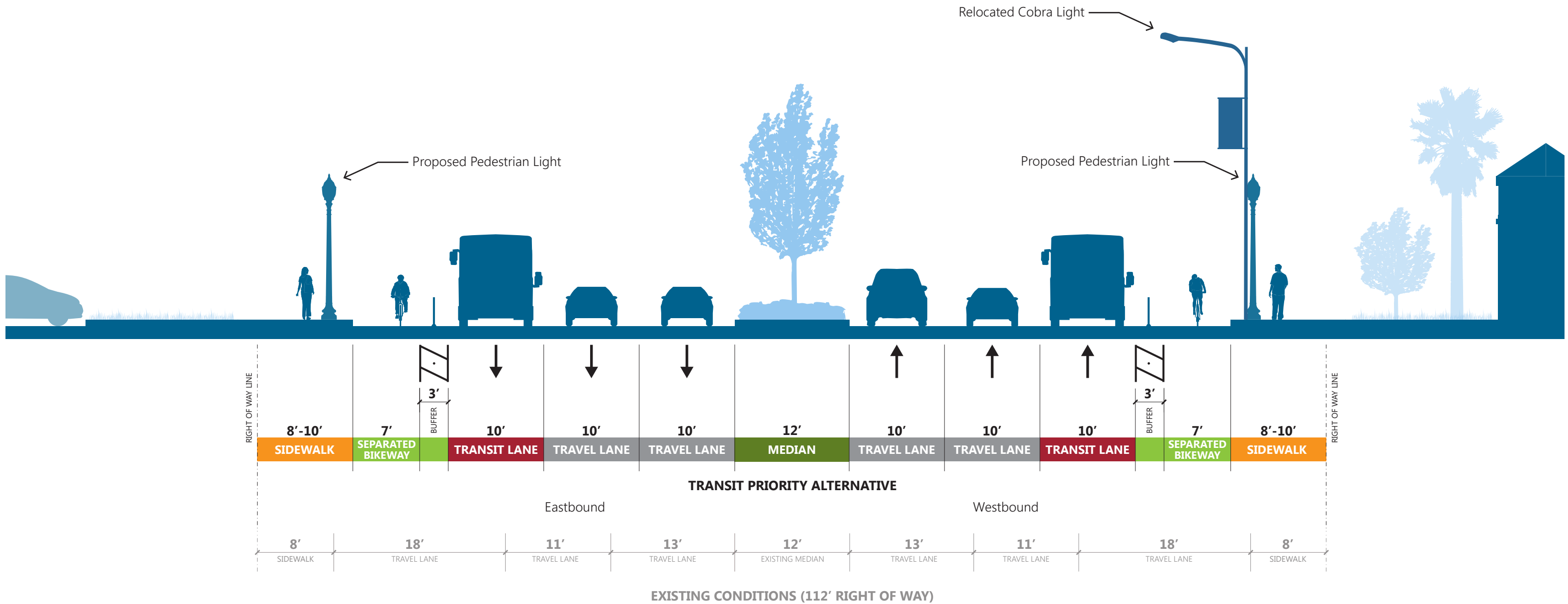




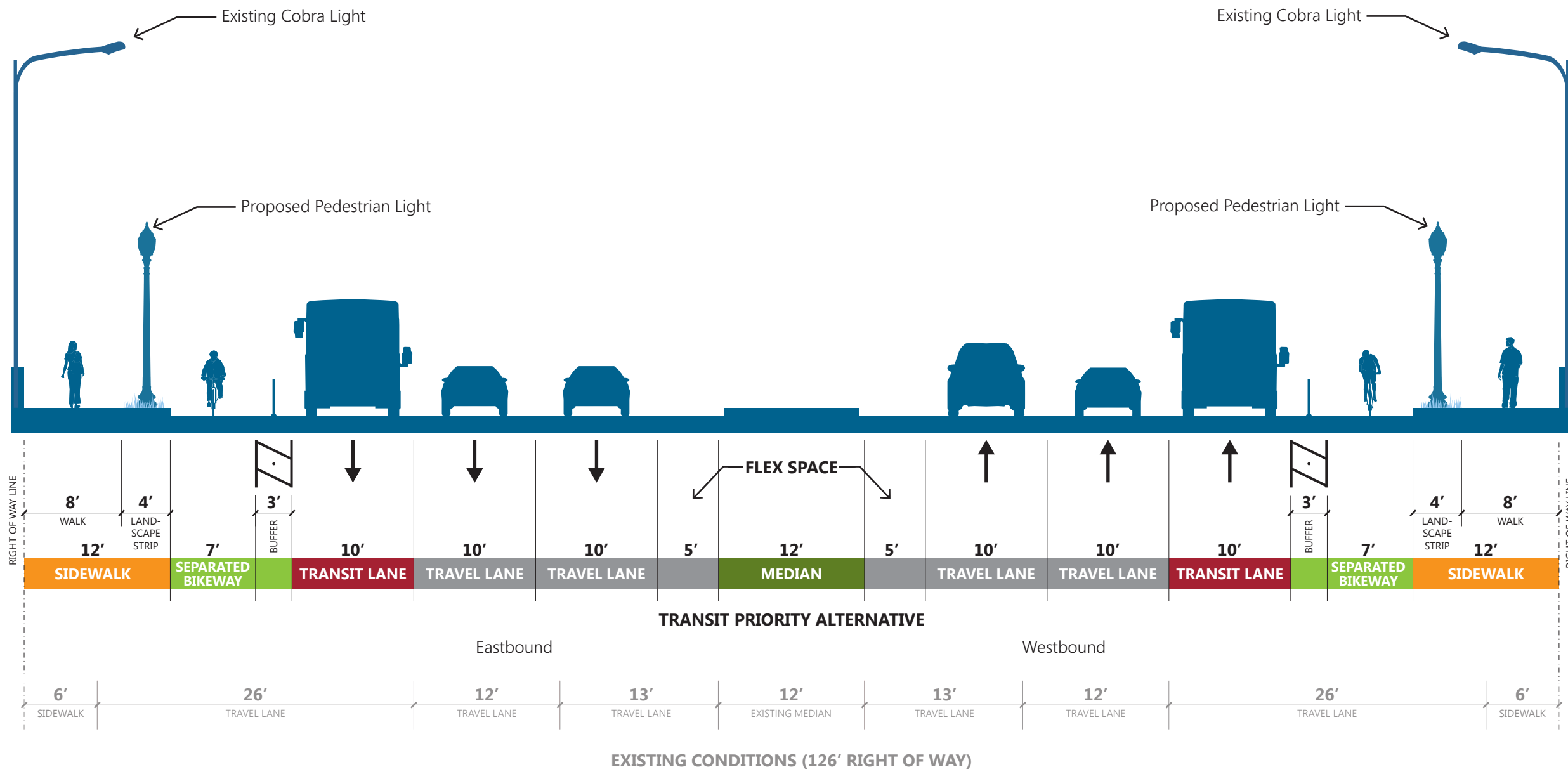
Keyes Street
 Between S. 11th Street and Senter Road
 (Looking West)



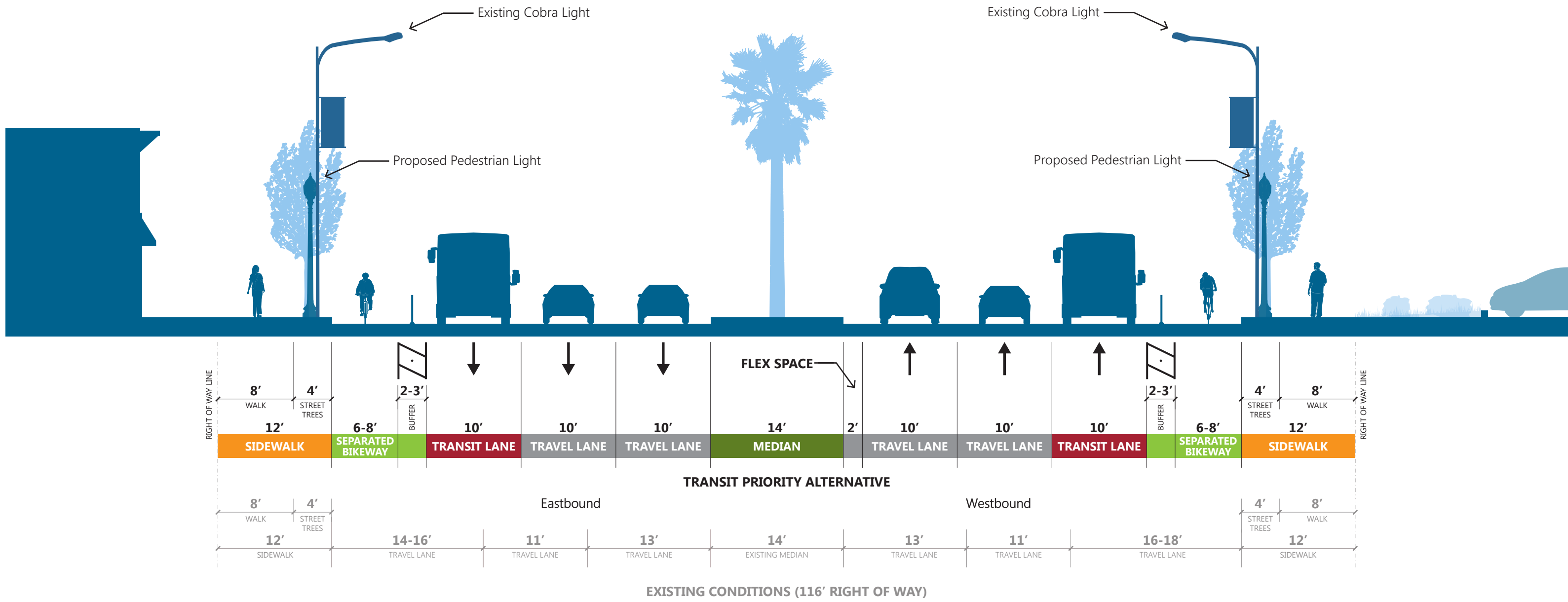
Story Road
 Between Senter Road and McLaughlin Avenue
 (Looking West)



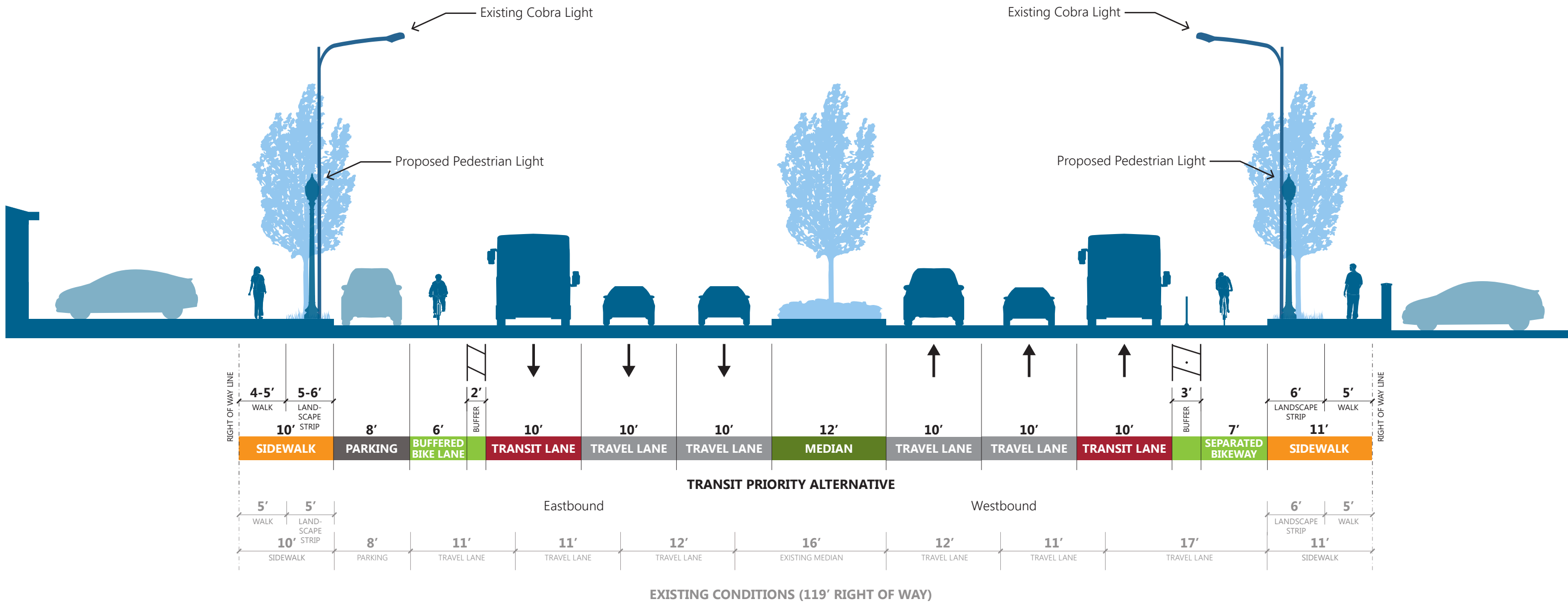
Story Road
 Between McLaughlin Avenue and Via Ferrari/Felipe Avenue
 (Looking West)



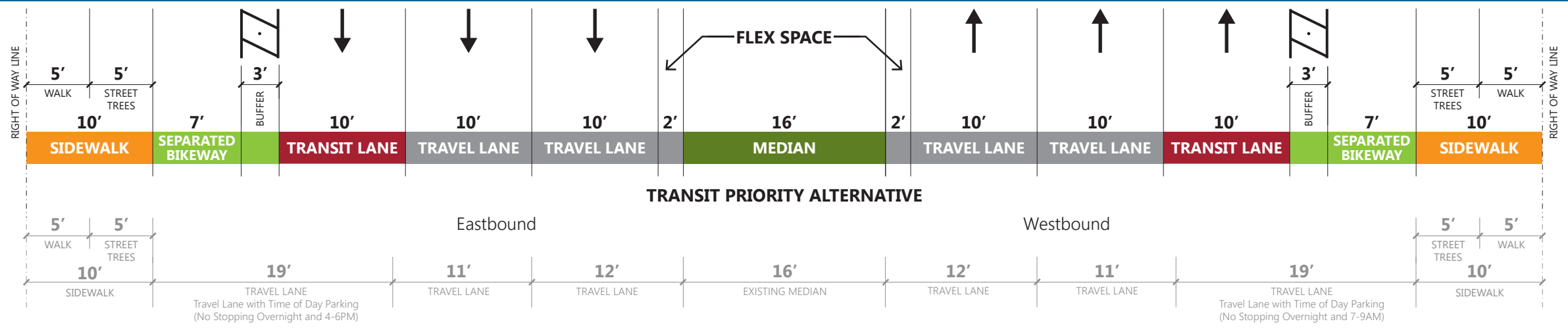
Story Road
 Highway 101 Interchange
 (Looking West)



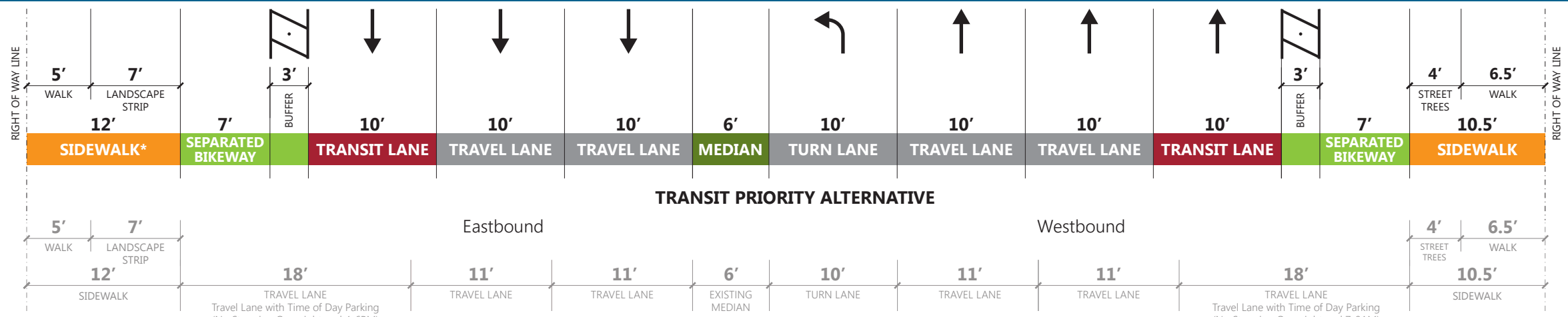
Story Road
 Between Knox Avenue and McCreery Avenue/Bal Harbor Way
 (Looking West)



Story Road
 Between McCreery Avenue/Bal Harbor Way and Sunset Avenue
 (Looking West)



Story Road
Between Sunset Avenue and Adrian Way
(Looking West)



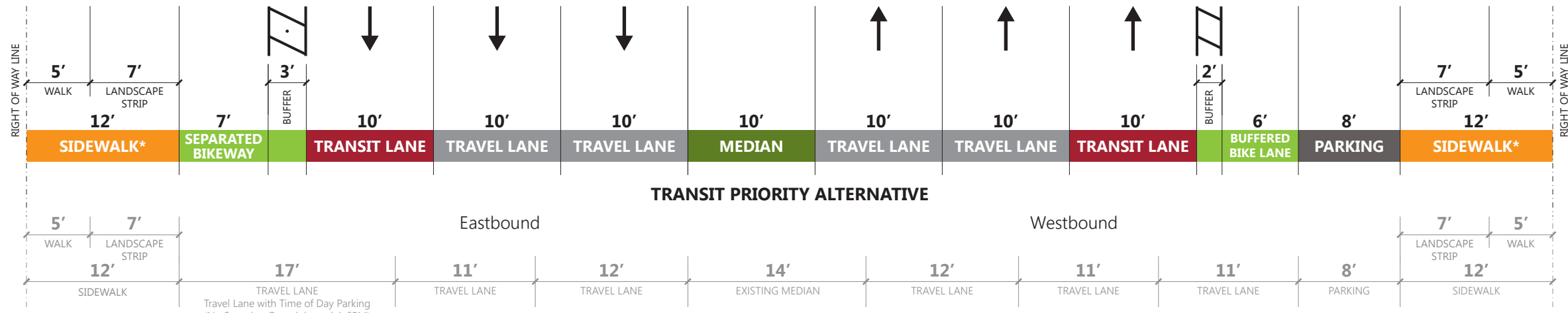
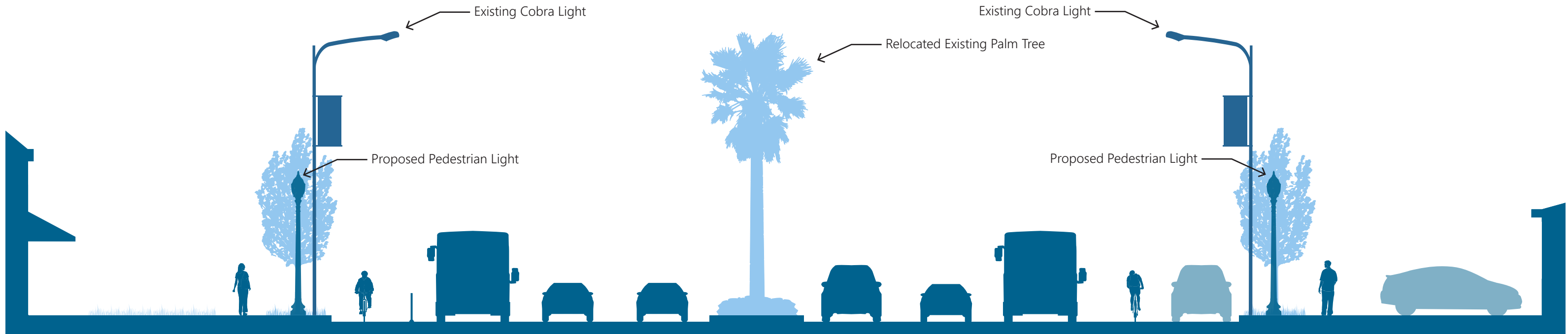
*The sidewalk maybe reconfigured as 7' walk with 5' landscape strip. However, this would impact the existing row of trees.



Story Road

Between Adrian Way and S. Jackson Avenue

(Looking West)



TRANSIT PRIORITY ALTERNATIVE

EXISTING CONDITIONS (120' RIGHT OF WAY)

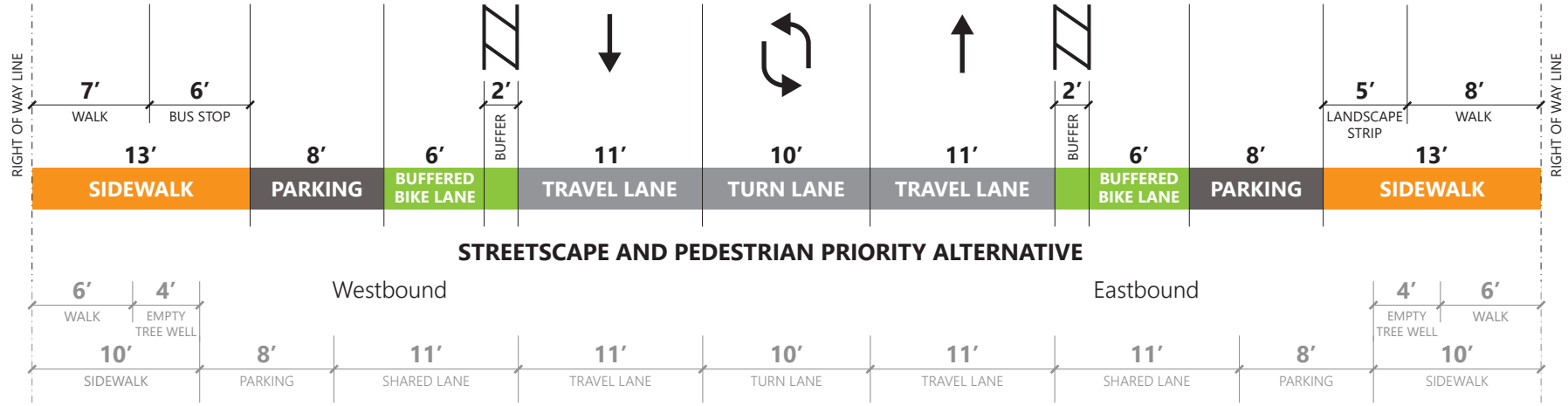
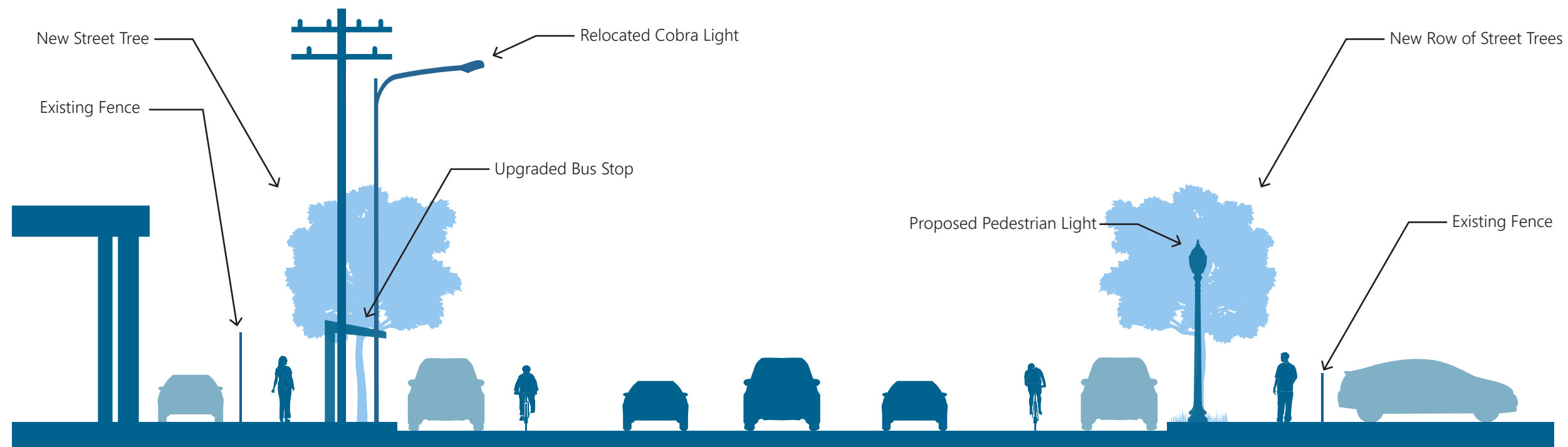
*The sidewalk maybe reconfigured as 7' walk with 5' landscape strip. However, this would impact the existing row of trees.



Story Road
Between S. Jackson Avenue and Capitol Expressway
(Looking West)

**APPENDIX C: STORY ROAD, KEYES STREET, AND GOODYEAR
STREET TRANSIT STREETScape AND PEDESTRIAN PRIORITY
ALTERNATIVE CROSS-SECTIONS**



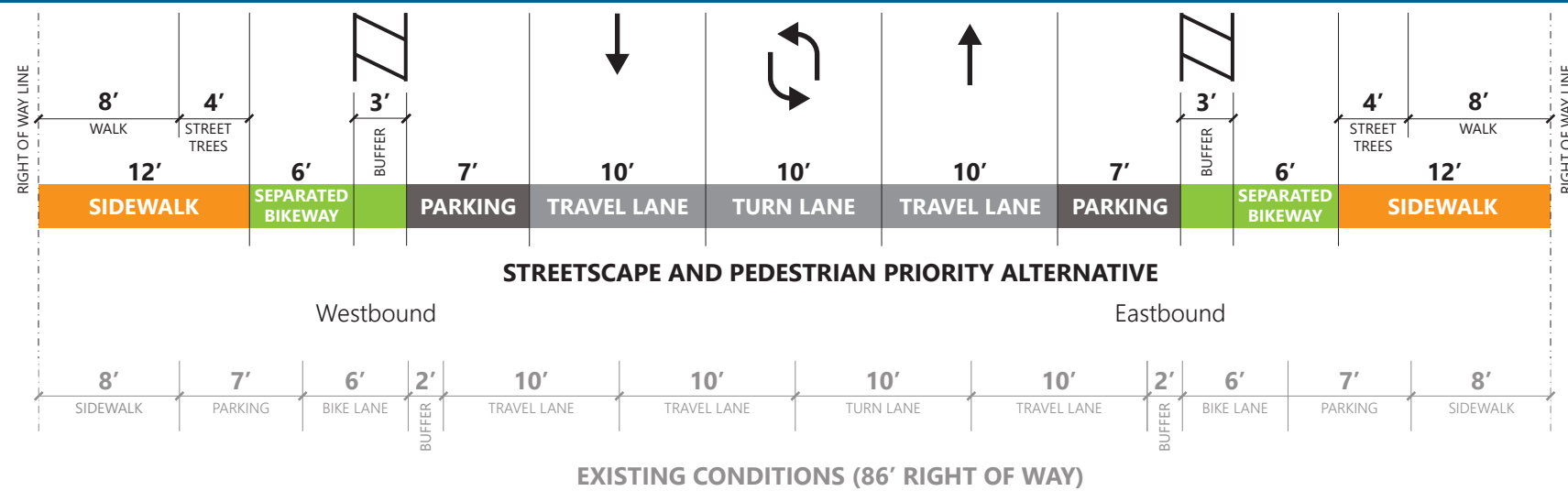
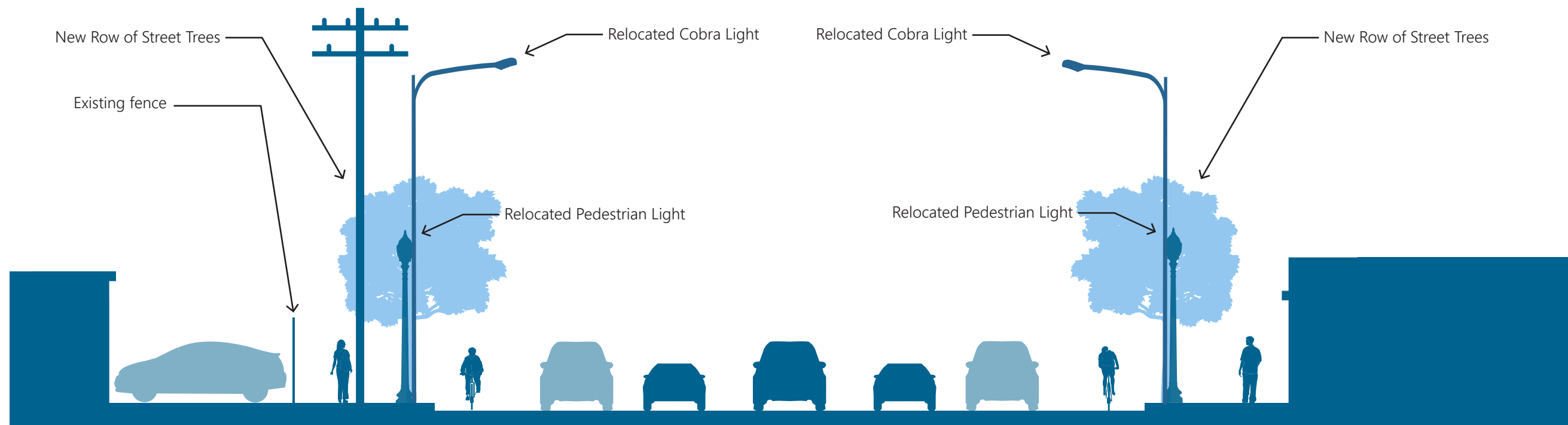


STREETSCAPE AND PEDESTRIAN PRIORITY ALTERNATIVE

EXISTING CONDITIONS (90' RIGHT OF WAY)

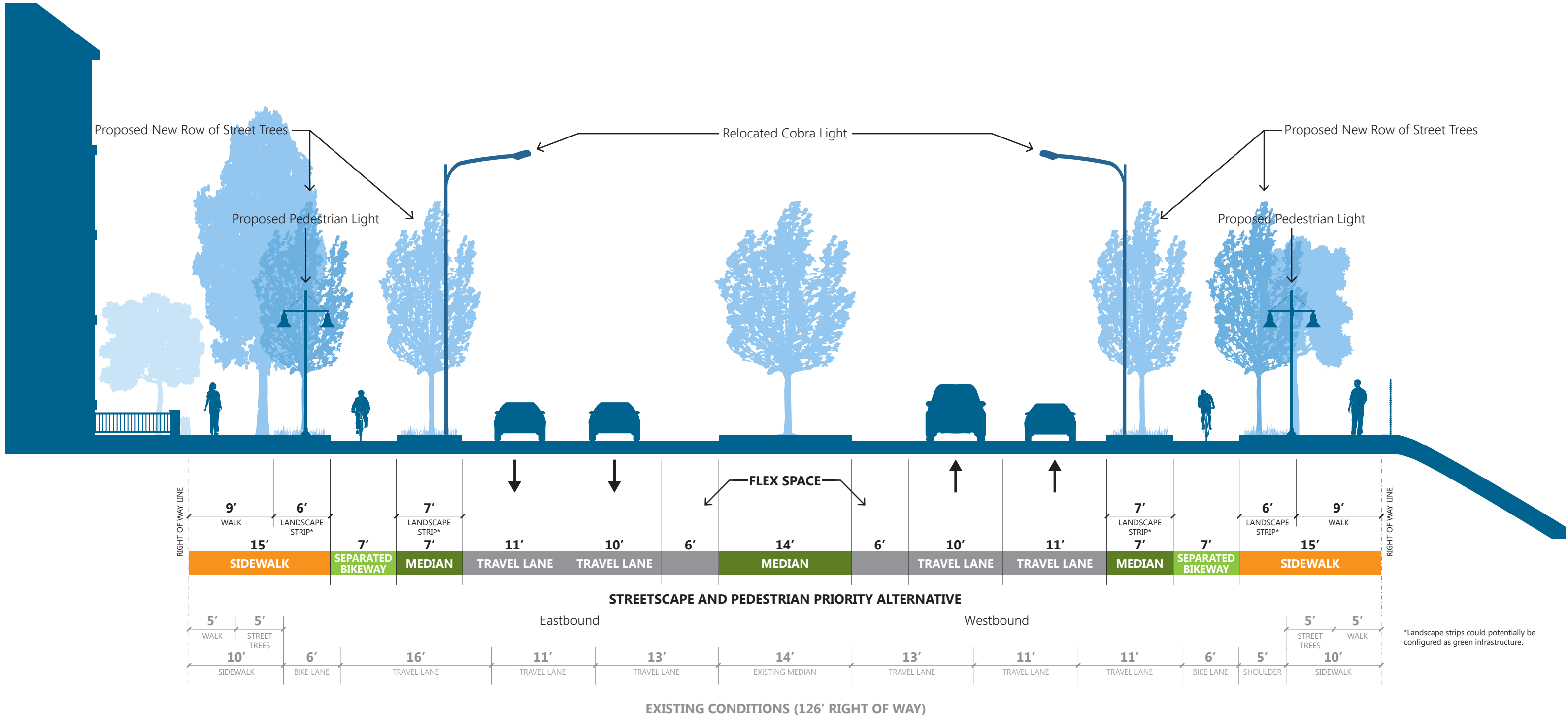


Goodyear Street
 Between Graham Avenue and S. 1st Street
 (Looking East)



Keyes Street
 Between S. 1st Street and S. 10th Street
 (Looking East)

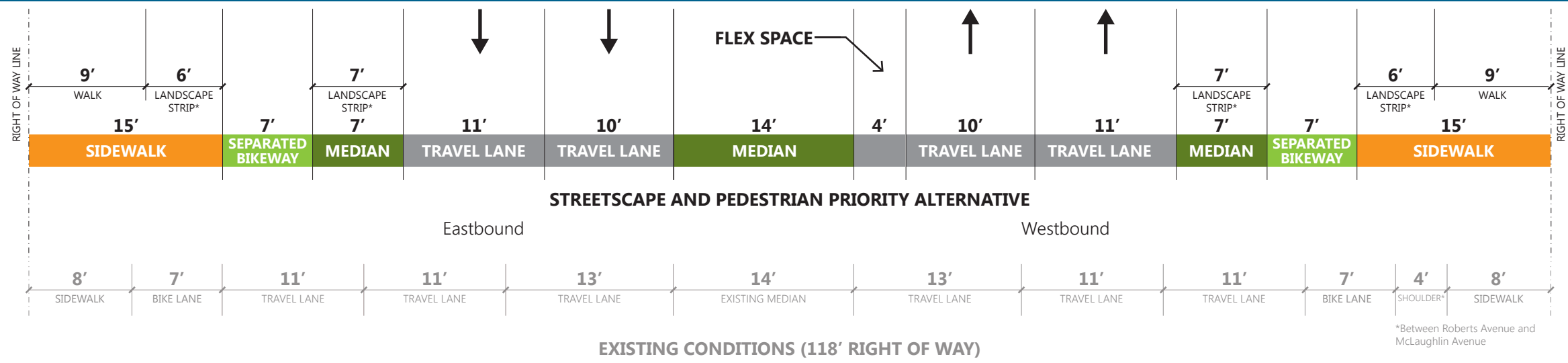
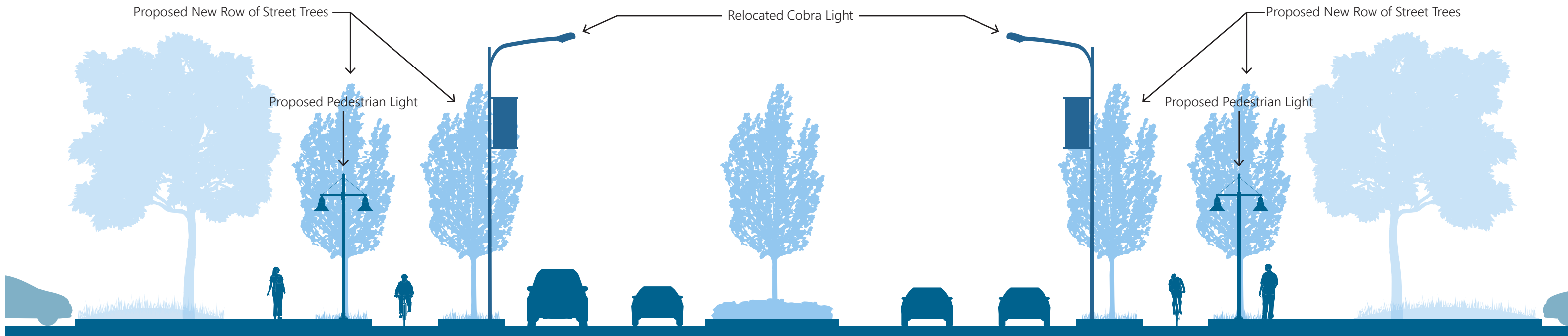




*Landscape strips could potentially be configured as green infrastructure.



Keyes Street
 Between S. 11th Street and Senter Road
 (Looking West)



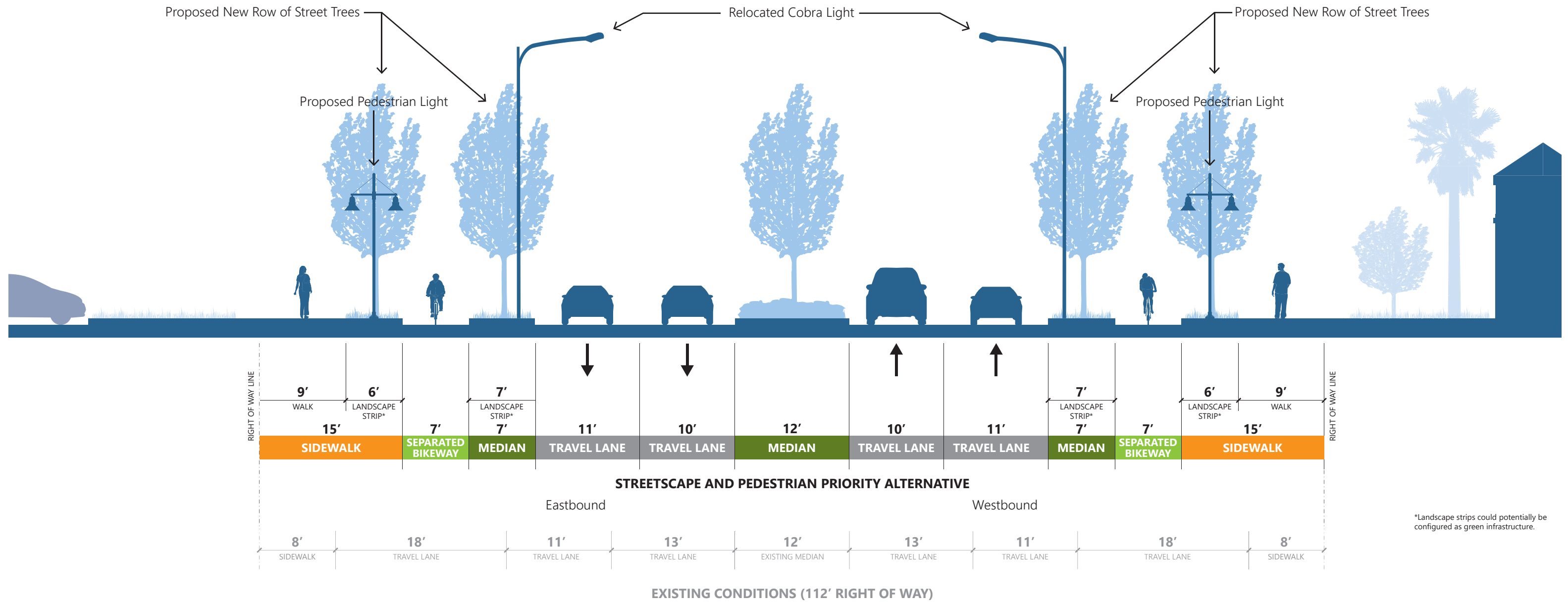
*Landscape strips could potentially be configured as green infrastructure.



Story Road

Between Senter Road and McLaughlin Avenue

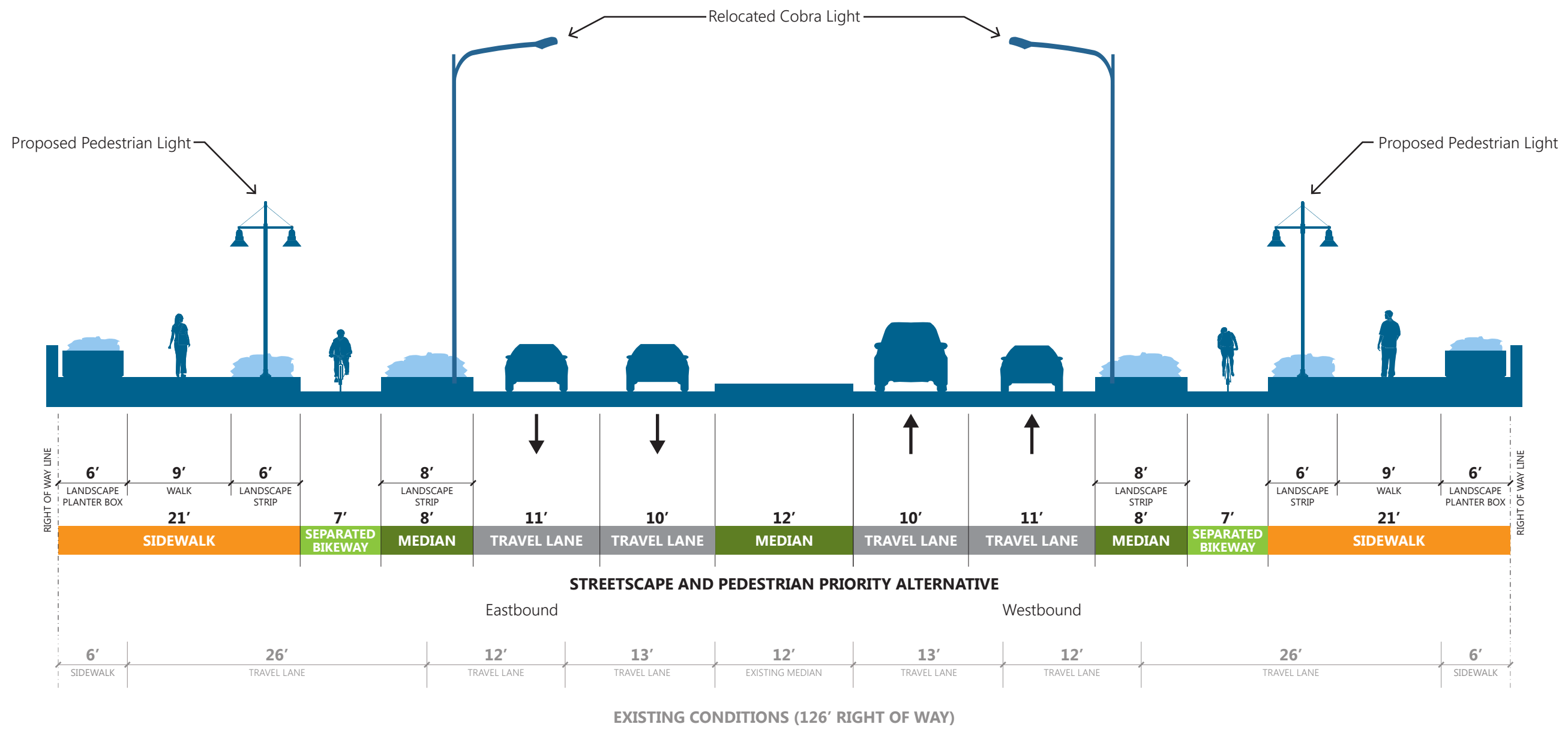
(Looking West)



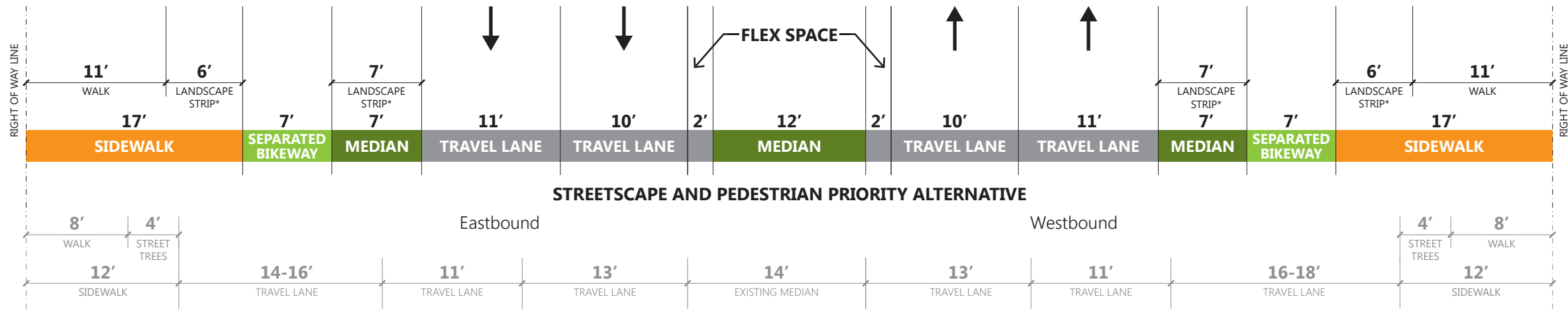
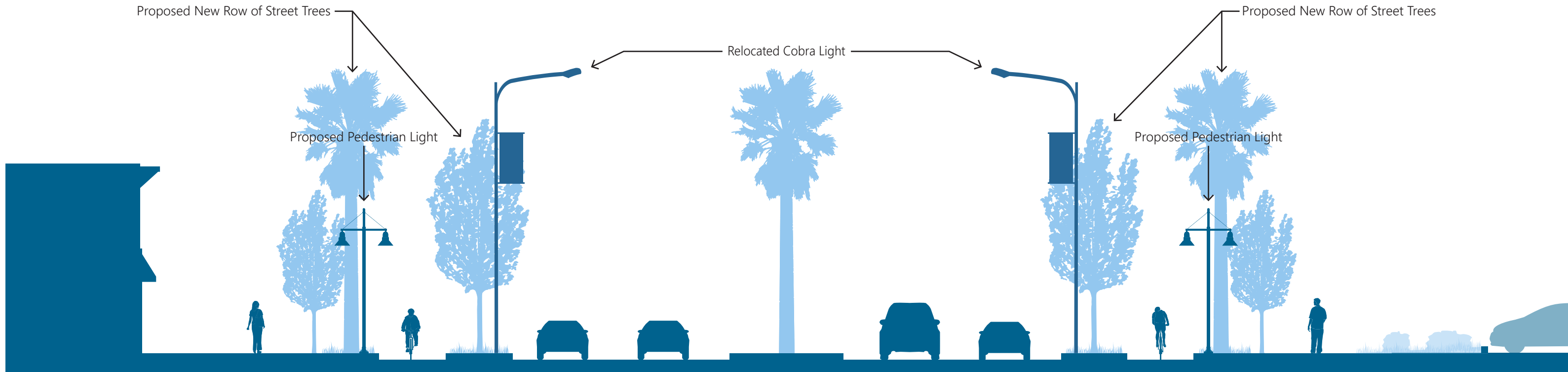
*Landscape strips could potentially be configured as green infrastructure.



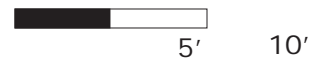
Story Road
 Between McLaughlin Avenue and Via Ferrari/Felipe Avenue
 (Looking West)



Story Road
 Highway 101 Interchange
 (Looking West)



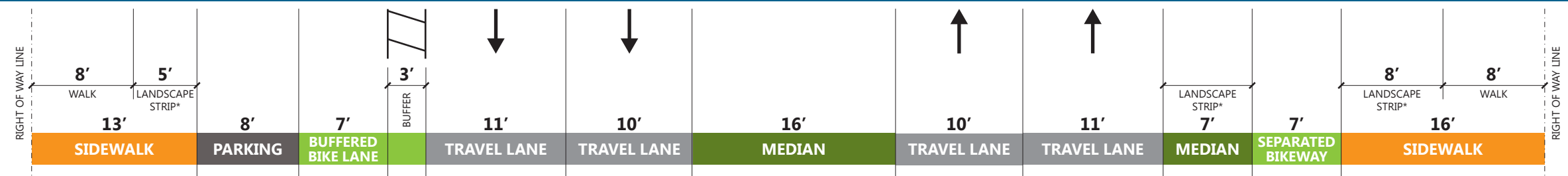
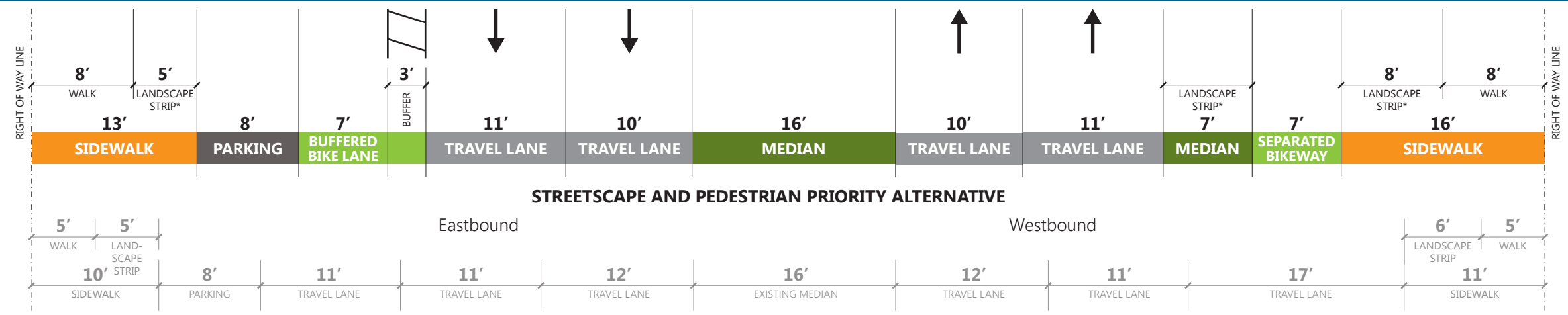
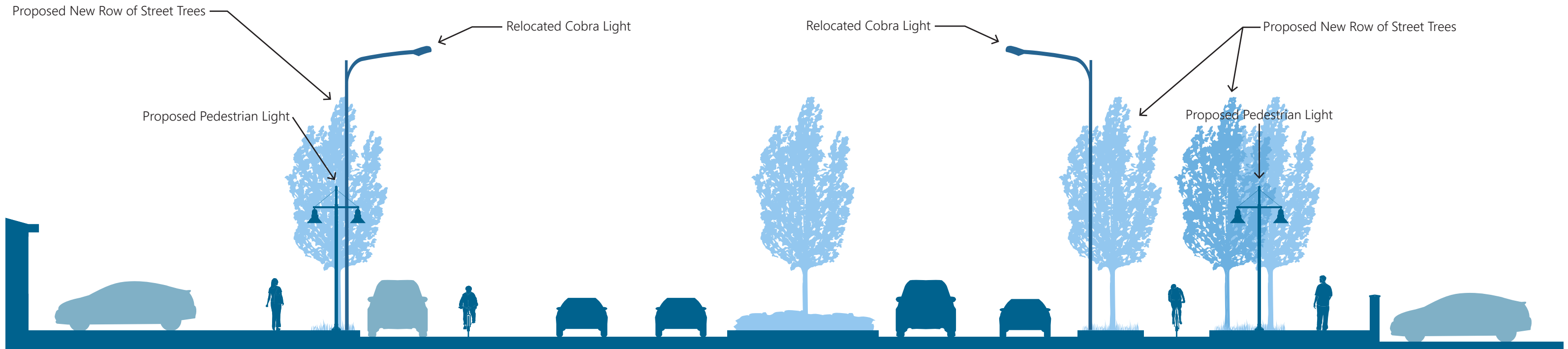
*Landscape strips could potentially be configured as green infrastructure.



Story Road

Between Knox Avenue and McCreery Avenue/Bal Harbor Way

(Looking West)



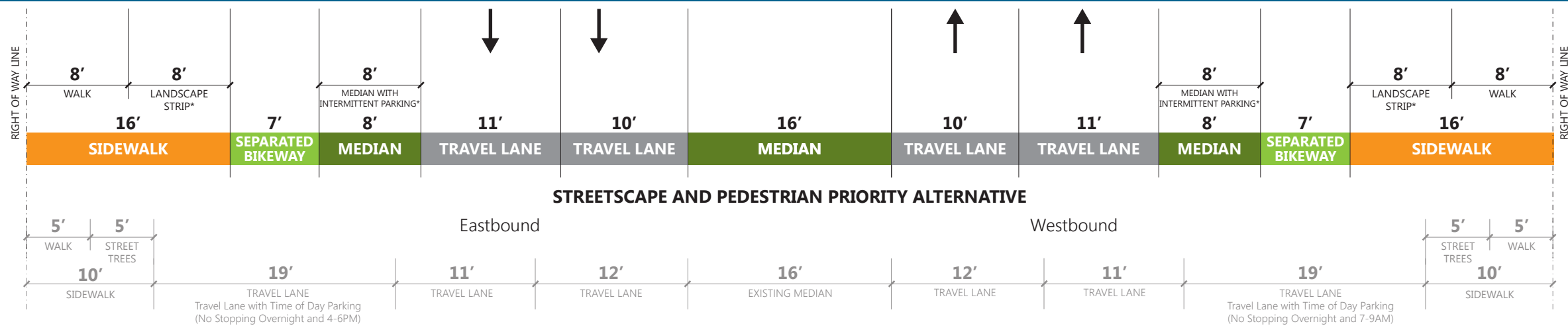
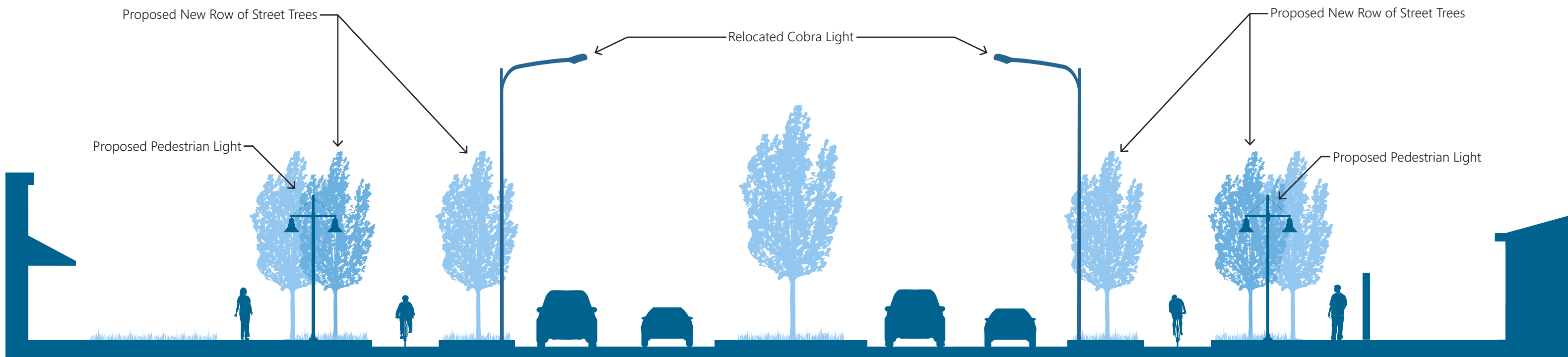
*Landscape strips could potentially be configured as green infrastructure.



Story Road

Between McCreery Avenue/Bal Harbor Way and Sunset Avenue

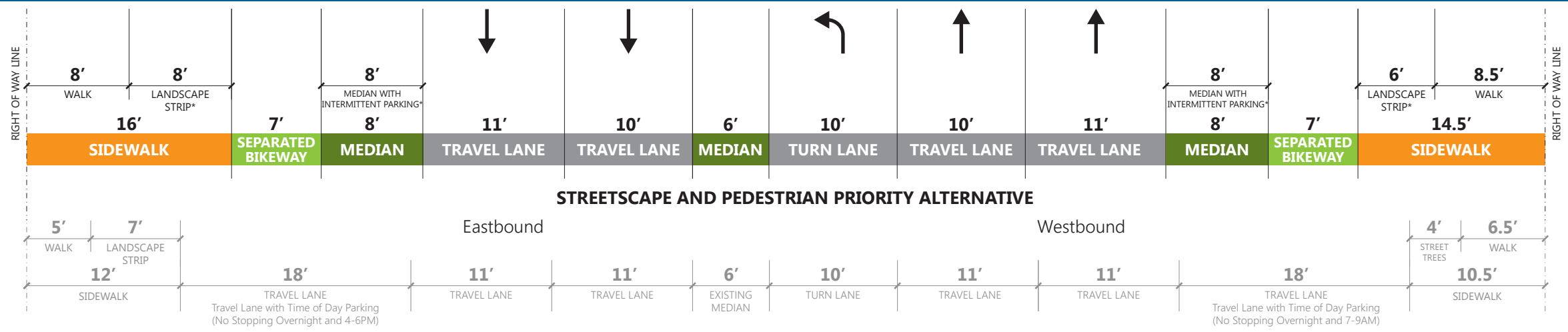
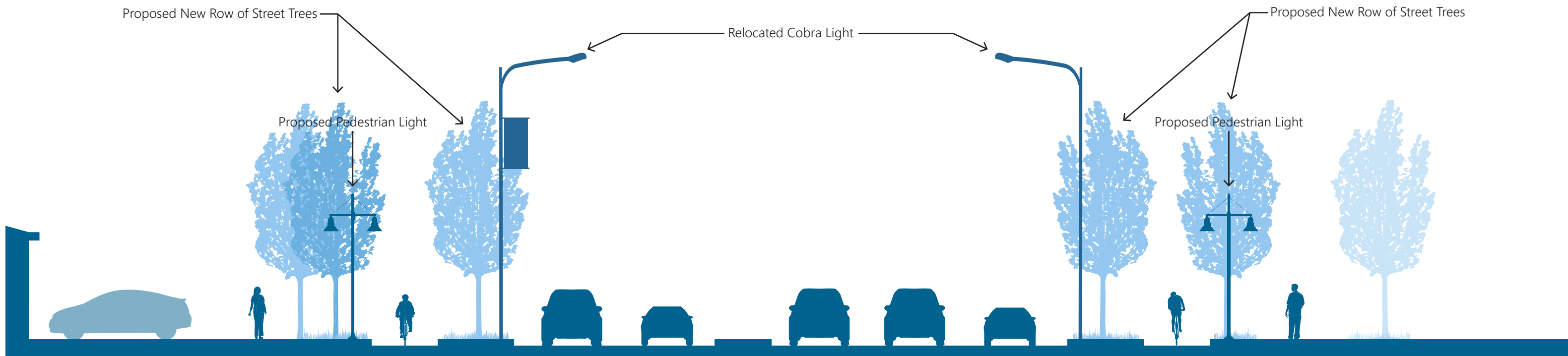
(Looking West)



*Landscape strips could potentially be configured as green infrastructure.



Story Road
 Between Sunset Avenue and Adrian Way
 (Looking West)



EXISTING CONDITIONS (118.5' RIGHT OF WAY)

STREETScape AND PEDESTRIAN PRIORITY ALTERNATIVE



*Landscape strips could potentially be configured as green infrastructure.



Story Road
Between Adrian Way and S. Jackson Avenue
(Looking West)

