



Photo Source: Tampa Bay Times | Alessandra Da Pra

Meeting Format

- Introduction
- Resurfacing Information
- Project Information- City of Tampa
- Questions/Answers

Introduction



**Hillsborough
County** Florida

Resurfacing Information

- Milling and resurfacing Bay to Bay Blvd from East of Dale Mabry Hwy to West of Bayshore Blvd, and upgrading curb ramps for compliance with the Americans with Disabilities Act (ADA).
- Construction Start = Fall 2018

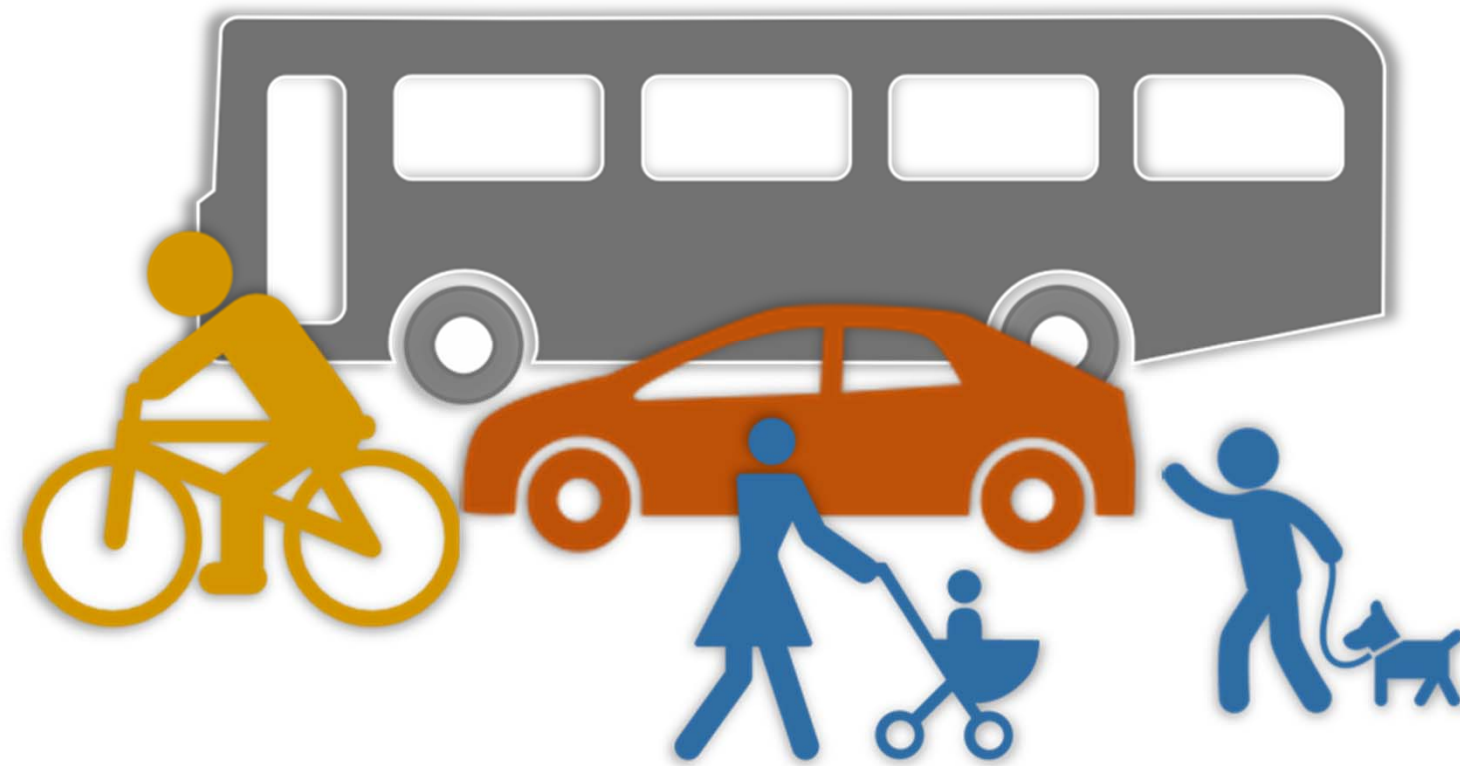
Project Information and Development



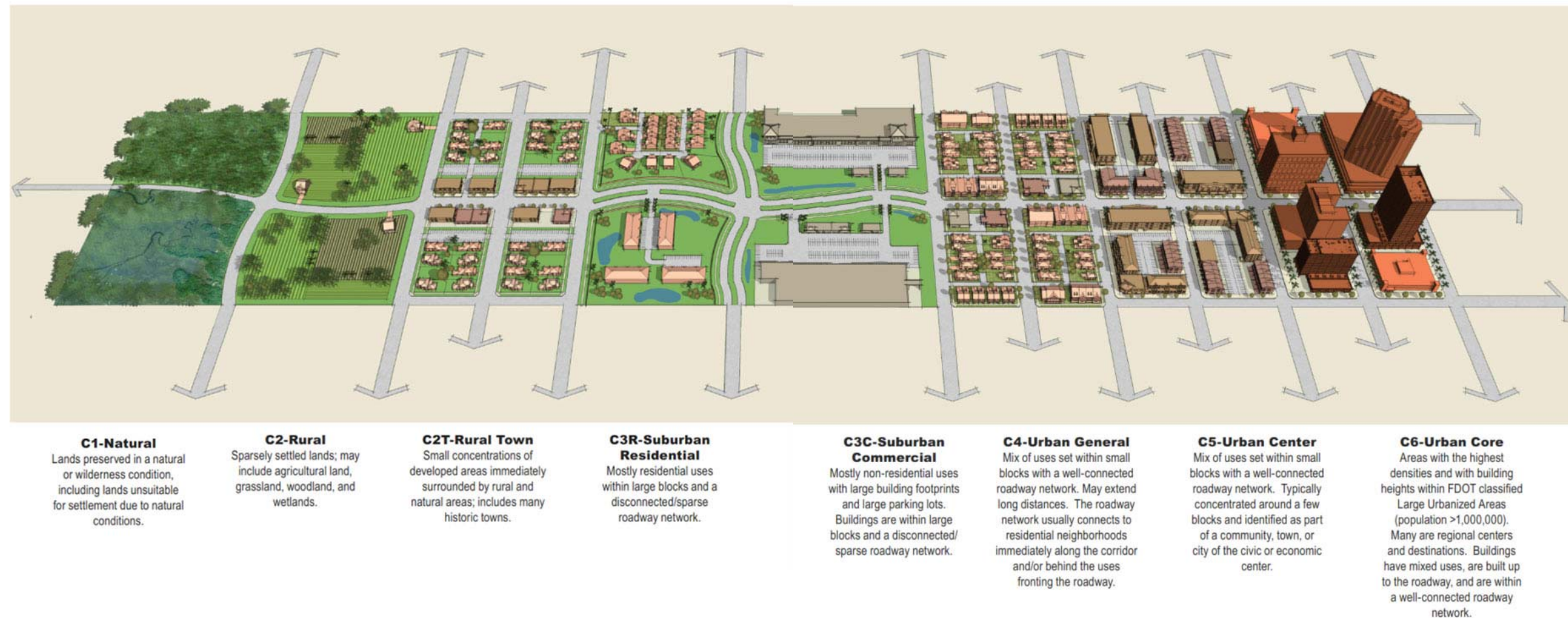
- The City of Tampa is considering implementing a complete streets project along Bay to Bay Boulevard. This project consists of two distinct sections:
1. A complete streets project between Dale Mabry Highway and Esperanza Avenue.
 2. A roadway capacity project between Esperanza Avenue and Bayshore Blvd.

What are Complete Streets?

Complete Streets are designed so all modes of transportation can share the road safely.



The Right Street in the Right Place



There is no single design application for Complete Streets; each one is unique and responds to its community context.

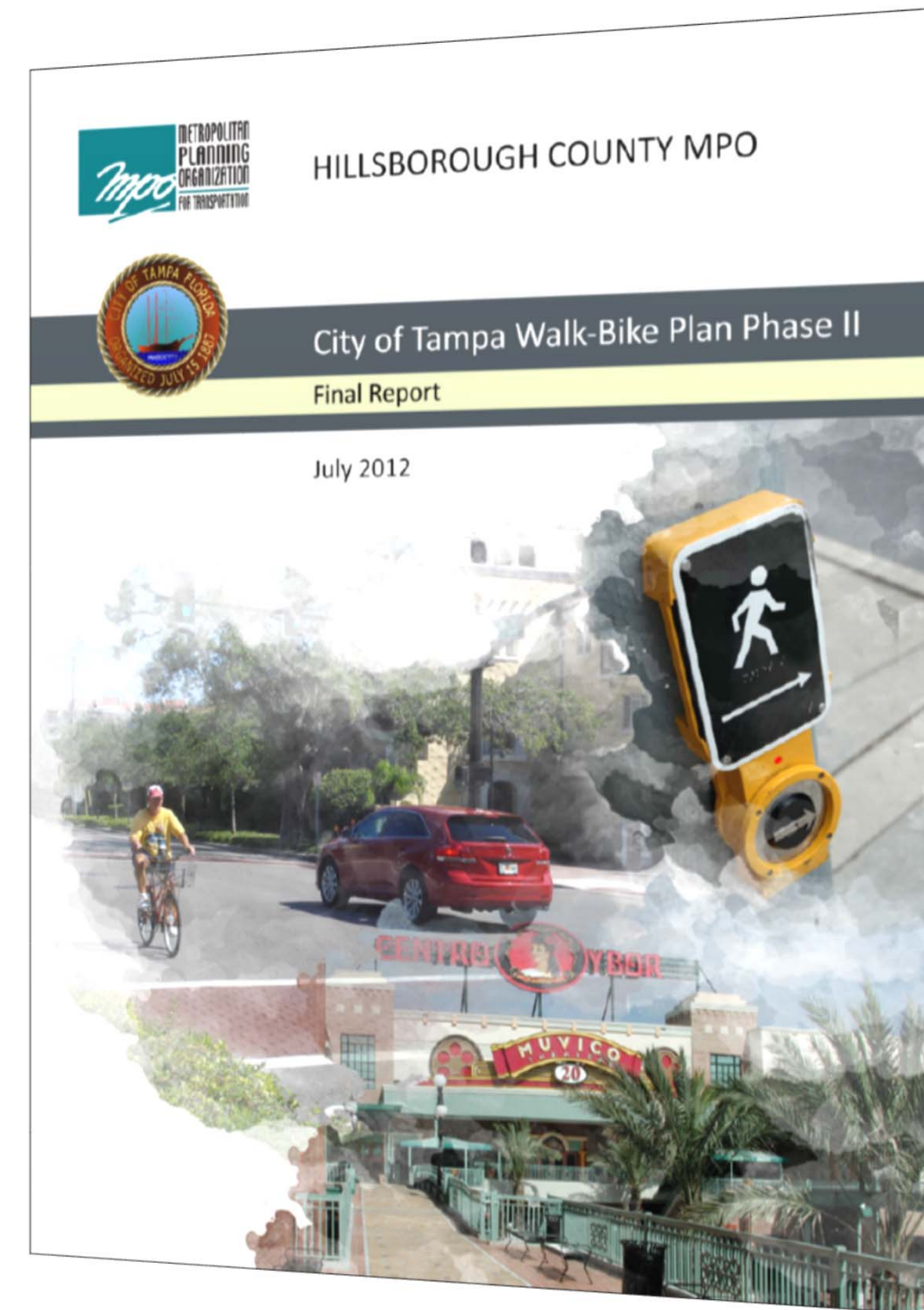
What is Bay to Bay Blvd.?



How did this Project Originate?

City of Tampa Walk-Bike Plan, 2012

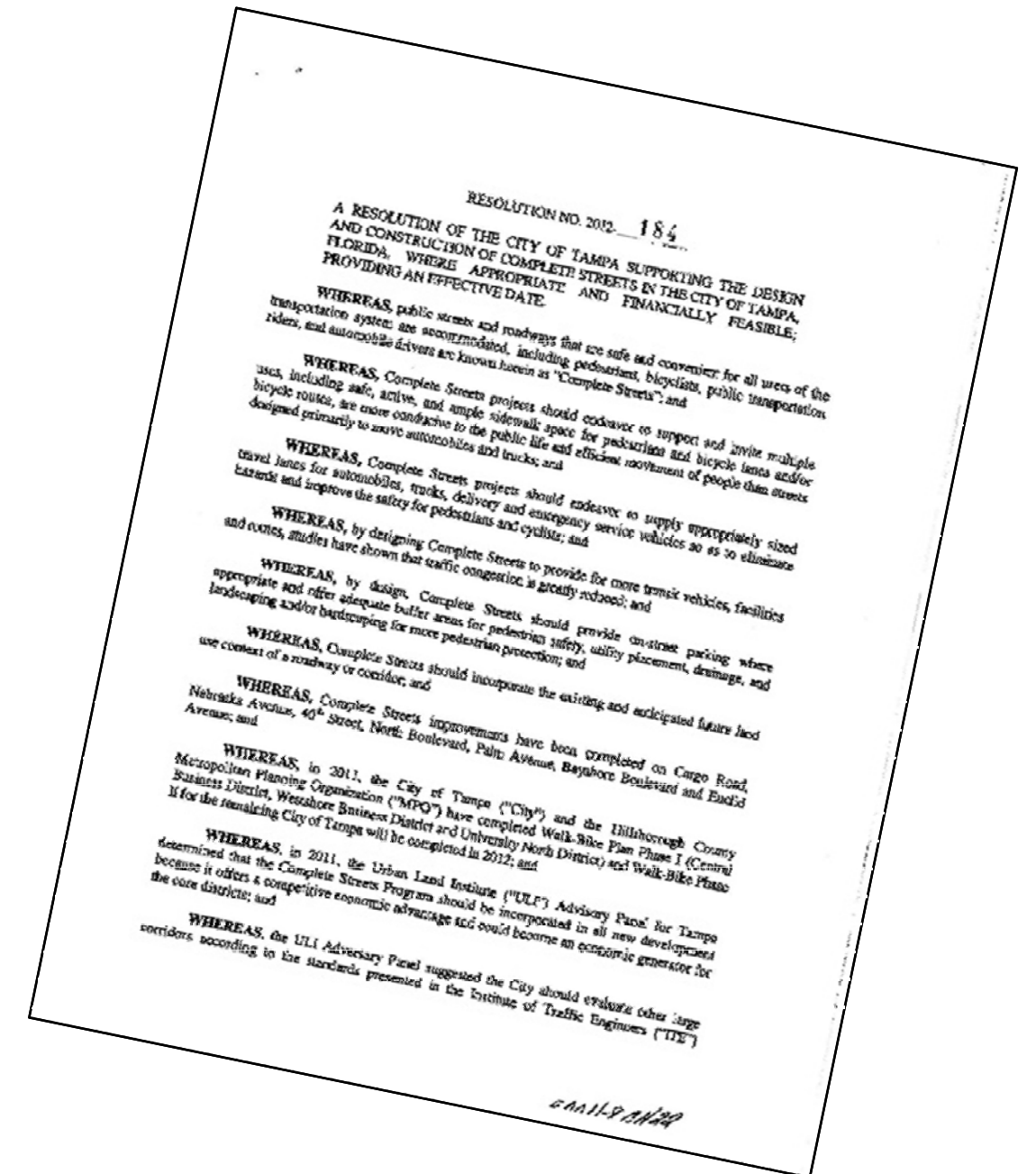
- Multi-Phased plan to identify opportunities for enhanced bicycle and pedestrian mobility throughout the City.
- Developed by the Hillsborough County MPO working in close coordination with the City of Tampa.
- “Provide for cross-city North-South and East-West connections, “ specifically bike lanes
- El Prado Blvd. is a similar project recommended in South Tampa



Complete Streets Resolutions

City Reso 2012-184; Section 7:

- That the provisions set forth in this Resolution should be employed where appropriate and financially feasible in all transportation planning, design, review, operations, **major maintenance projects (such as milling and overlay), new construction, and reconstruction projects.**
- City departments including Public Works, **Transportation**, Growth Management and Development Services and Parks and Recreation should consider the provisions of this Resolution as they plan, design and review improvements within the City's rights-of-way.

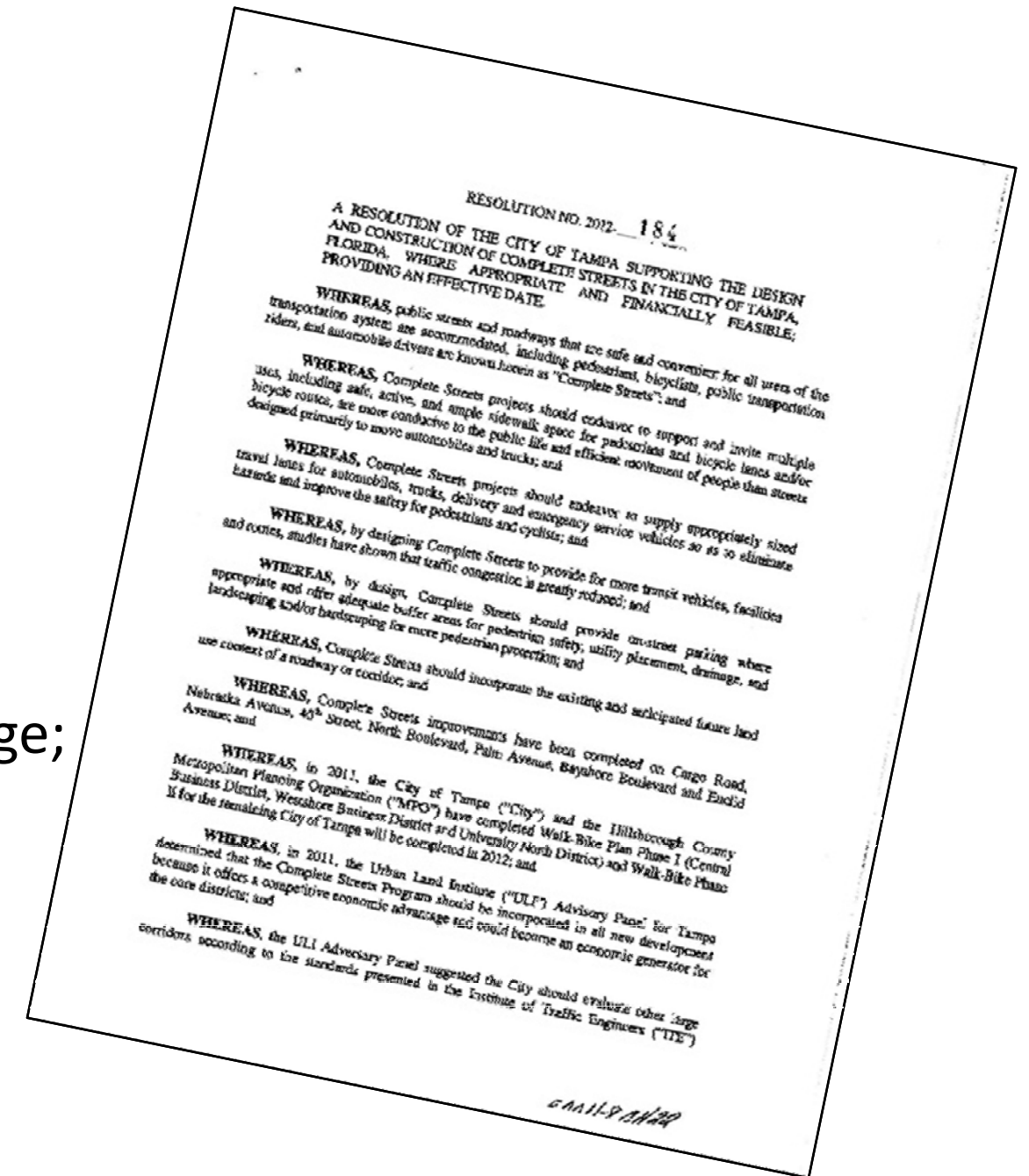


Complete Streets Resolutions

- City Resolution 2012-184 (Feb 16, 2012)

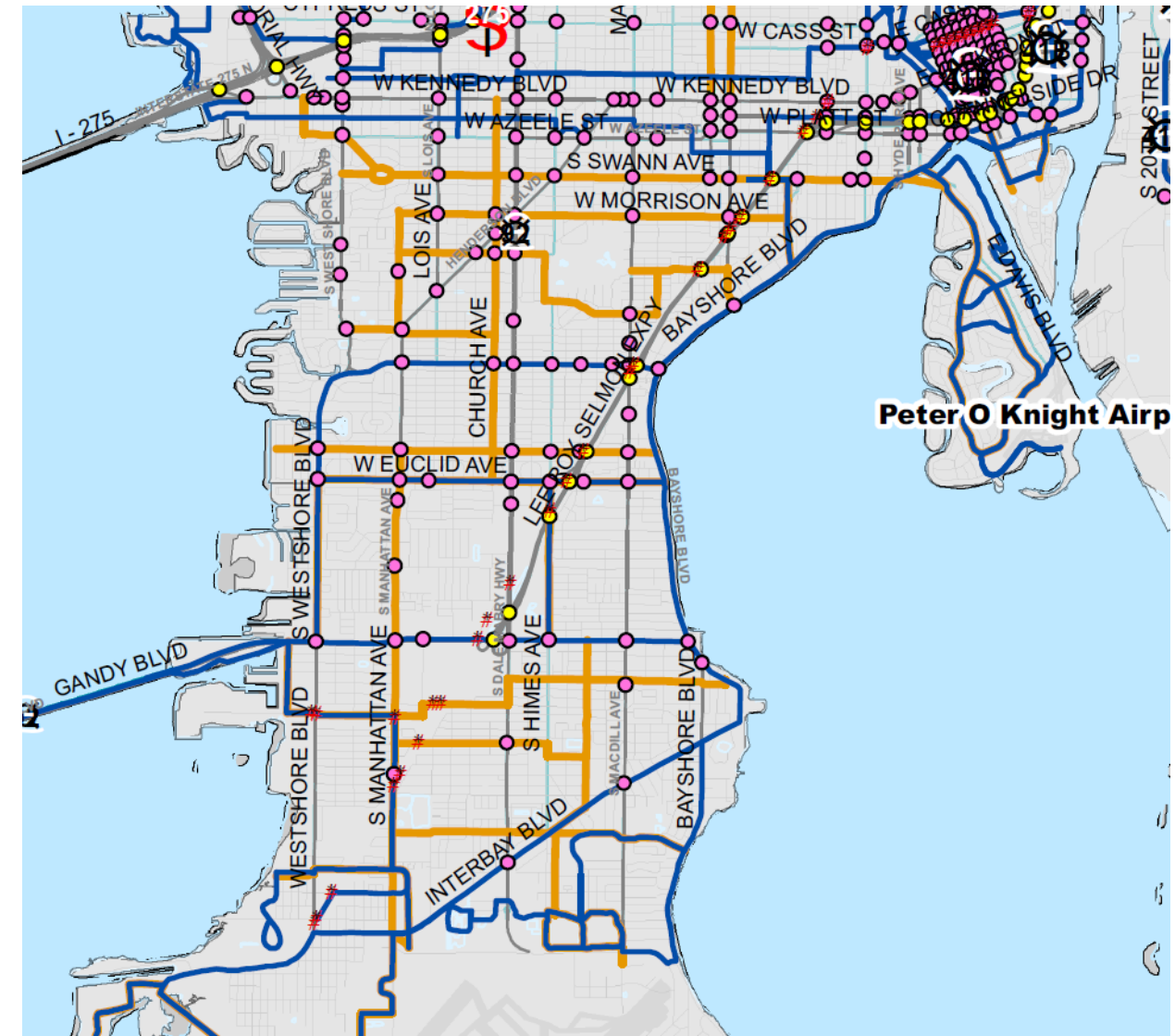
City Reso 2012-184; Section 4:

- **Sidewalk** space for pedestrians;
- **Bicycle lanes** or bicycle routes;
- **Appropriately sized travel lanes**
- **Transit** vehicles, facilities and routes;
- **On-street parking** where applicable;
- **Median use** for traffic flow, safety, and pedestrian refuge;
- **Buffer areas**
- **Landscaping/hardscaping**;
- **Land use context.**



Why Now?

- The City initiated a traffic study in June 2016 to analyze the existing roadway conditions to see what safety and operational improvements could be made
- In August 2016, the County informed the City that W. Bay to Bay Blvd. was scheduled for resurfacing



Source: *City of Tampa Walk-Bike Plan, Phase II*

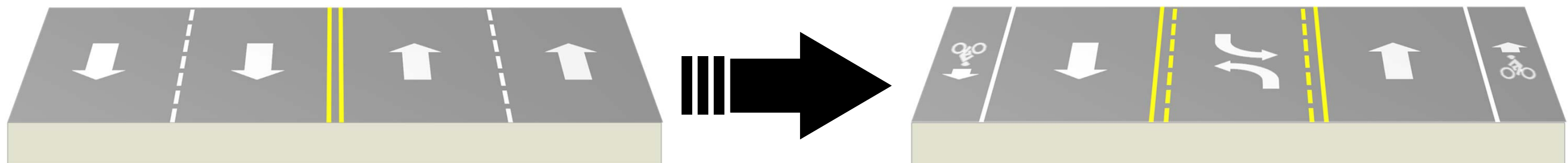
Traffic Terms

- **Volume** = amount of traffic that a roadway experiences
- **Capacity** = how much traffic volume a roadway can handle
- Engineers analyze and design roadways to handle traffic at their **Peak Hour**, time of day that volume is highest.
- **Level of Service** = ranking or grade of how well a roadway operates
 - LOS A= free flow traffic
 - LOS D= acceptable
 - LOS F= highly congested traffic




4 Lane to 3 Lane Conversion

- In the 1950's and 1960's, suburbs were growing, roadway projects were focused on expansion. Many of the two-lane roads were expanded to 4-lane roadways. At this time, there simply was no engineering guidance on 3-lane roadways.
- Three-lane sections first started to appear in the 1970's where expansion was needed, but right-of-way was scarce. After the safety and capacity benefits became known, the popularity increased starting in the 1990's. Since this time, there has been a big spike in roadway conversions.



Is Bay to Bay Blvd. a Good Candidate?

LESS THAN 10,000 ADT	10,000 – 15,000 ADT	15,000 – 20,000 ADT	GREATER THAN 20,000 ADT
<i>Great candidate for Road Diets in most instances. Capacity will most likely not be affected.</i>	<i>Good candidate for Road Diets in many instances. Agencies should conduct intersection analysis and consider signal retiming to determine any effect on capacity.</i>	<i>Good candidate for Road Diets in some instances. Agencies should conduct a corridor analysis. Capacity may be affected at this volume depending on the "before" condition.</i>	<i>Agencies should complete a feasibility study to determine whether this is a good location for a Road Diet. There are several examples across the country where Road Diets have been successful with ADTs as high as 26,000. Capacity may be affected at this volume.</i>



1 FHWA, Road Diet Informational Guide, FHWA-SA-14-028 (Washington, DC: FHWA, 2014). Available at: http://safety.fhwa.dot.gov/road_diets/case_studies/roaddiet_cs.pdf.

2 City of Seattle Modeling Flow Chart for Road Diet Feasibility Determination. Available at: http://safety.fhwa.dot.gov/road_diets/info_guide/ch3.cfm#f1.

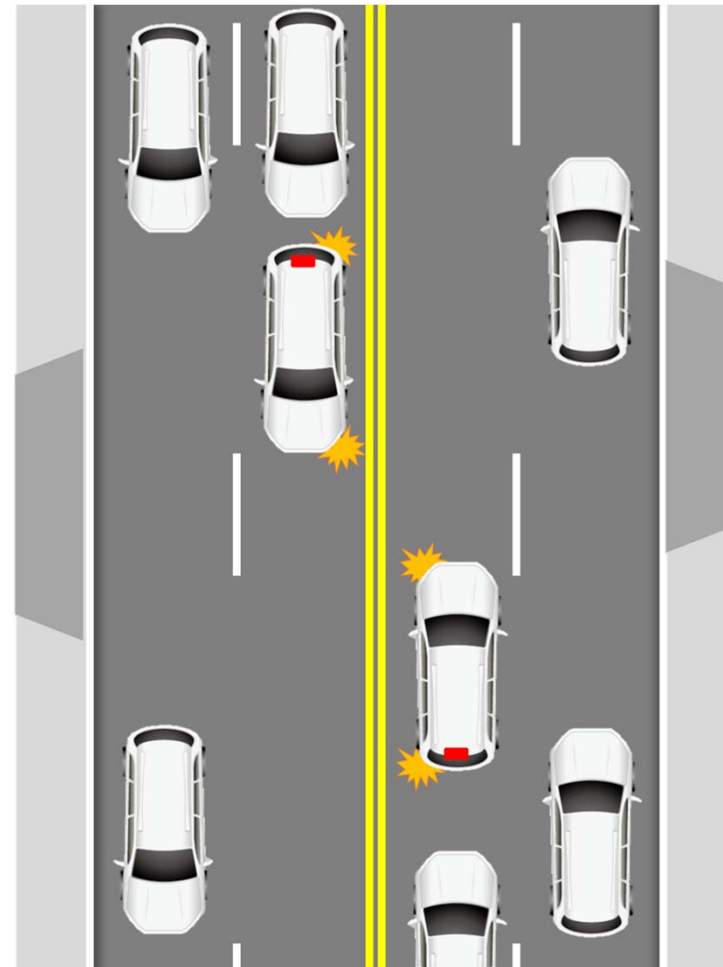
3 MnDOT Office of Traffic, Safety and Technology, Minnesota's Best Practices for Pedestrian/Bicycle Safety, Report 2013-22 (Roseville, MN: MNDOT, 2013). Available at: <http://www.dot.state.mn.us/stateaid/trafficsafety/reference/ped-bike-handbook-09.18.2013-v1.pdf>.

- The FHWA recommends a threshold of 20,000 AADT (Average Annual Average Daily Traffic)
- Bay to Bay Blvd (from Dale Mabry to Himes) AADT= **18,439**

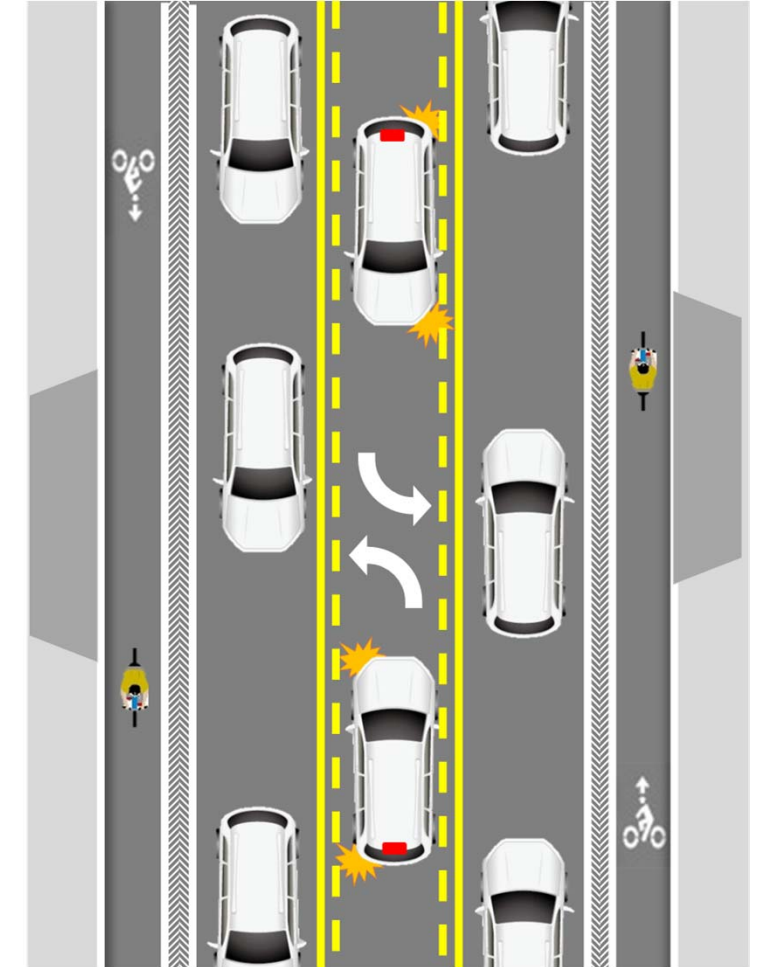
Capacity of a Three Lane Road

4-lane roads operate like a 3-lane road

- Outside lanes slowed by **right turners, busses, and garbage trucks.**
- Inside lanes delayed by **left turning vehicles** slowing and stopping
- **Bay to Bay Blvd. has 81 possible left turns in 6/10th of a mile**
 - 6 cross streets and 69 driveway cuts between Dale Mabry Hwy and Esperanza Ave.
 - Only 19 Single Family Homes
 - 81 possible left turns over 3,275 ft
 - **One every 40 feet**



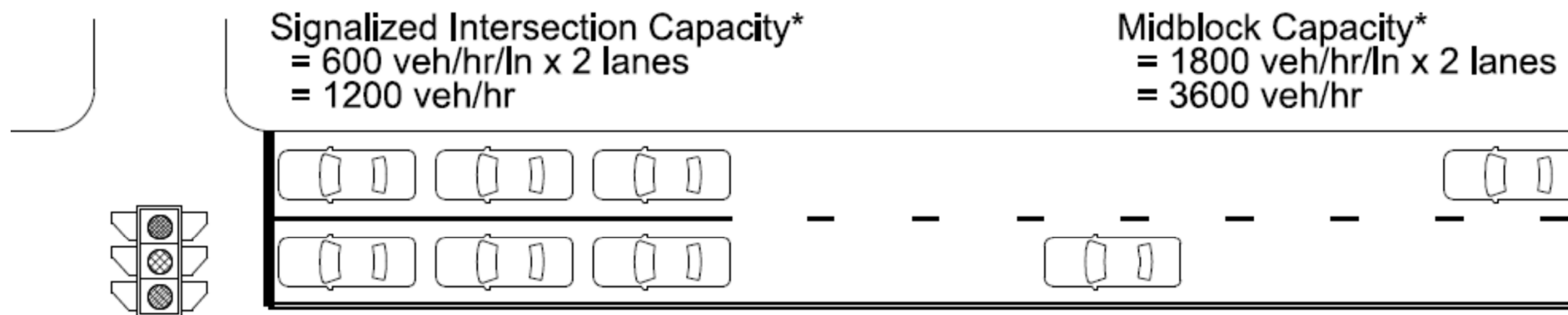
Turning vehicles create a de facto three-lane section along four-lane undivided roads. Additionally left turning vehicles have obstructed views.



A Road-Diet provides left turning vehicles with a dedicated lane, provides turning traffic with clear views of on-coming traffic, and provides space for bicycle lanes.

How Intersections Affect Capacity?

- Signalized intersections are the most significant constraint on roadway capacity
- Capacity “Rules of Thumb”
 - Single Mid-Block Travel Lane = **1,800 vehicles per hour**
 - Single Travel Lane through Signalized Intersection = **600 vehicles per hour**



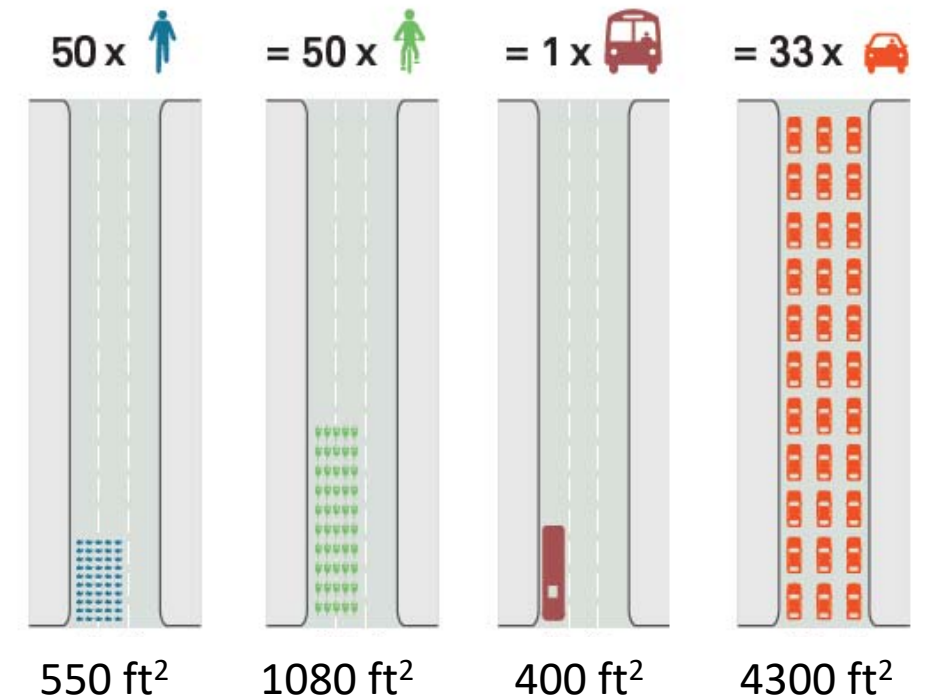
* Figure based on typical values, site specific conditions such as signal timing and operations significantly affect actual capacity.

Why the drop in capacity?

1. Red Lights
2. Vehicles slowing down
3. Delay to accelerate
4. Driver inattention increasingly becoming an issue with smart phones

Why Not Increase the Capacity?

- This project **does increase** capacity (more on that later)
- Intersections control capacity
 - Widening is not feasible
- Since we can't build our way out, perhaps we can be smarter with the space that we have.
 - Think of a roadway's capacity in terms of people rather than vehicles



Space Occupied by 50 People

While a bus needs three times as much space as a car, its carrying capacity per lane is unrivaled among other on-street modes. As land in urban areas becomes increasingly scarce, use the space within the street most efficiently to serve the largest number of people.

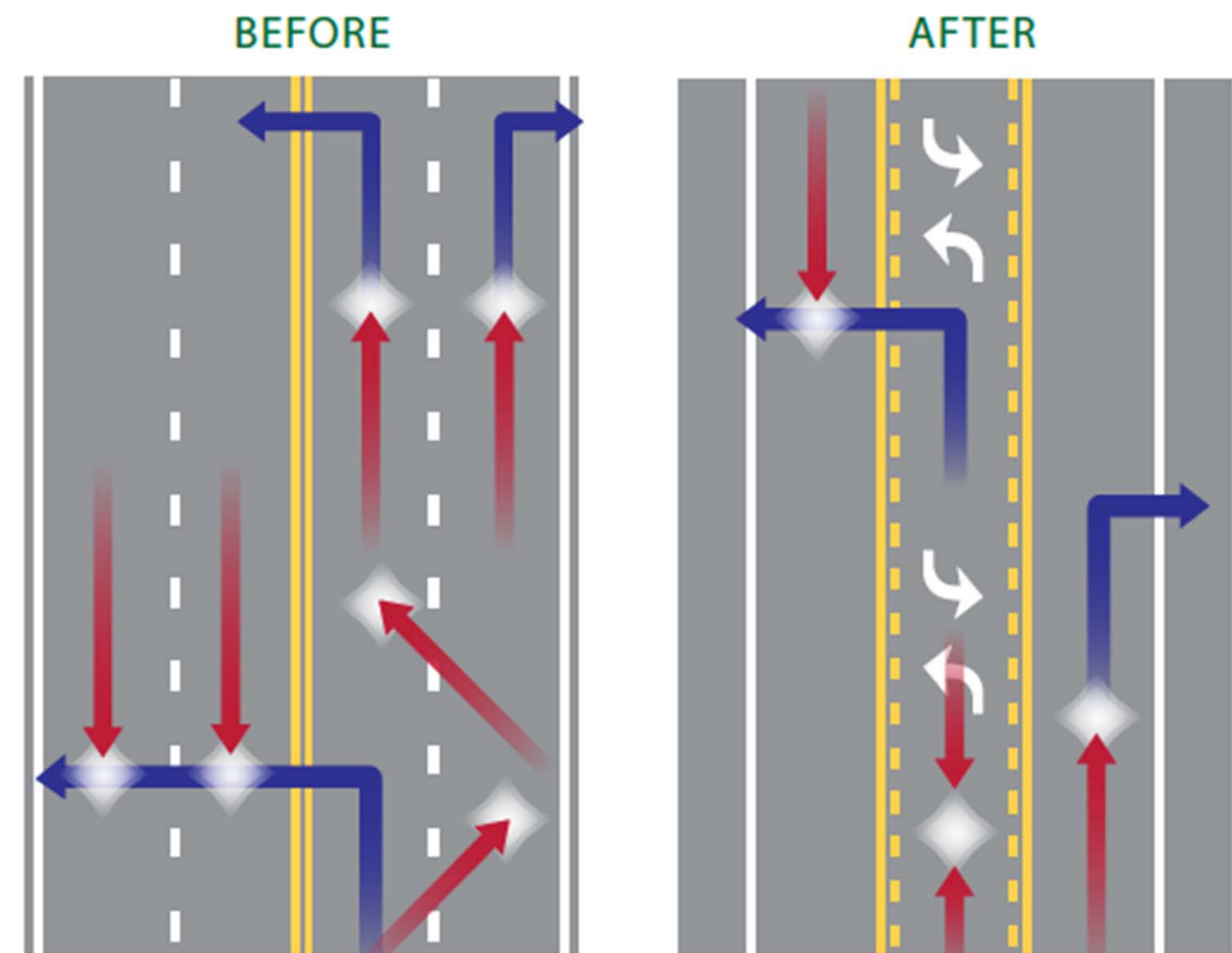
Safety- Overview

- A Federal Highway Administration (FHWA) **Proven Safety Countermeasure**
- Benefits include:
 - Safety
 - Ease of Use
 - Provision for Bike Lanes
 - Better Pedestrian Experience
 - Low cost



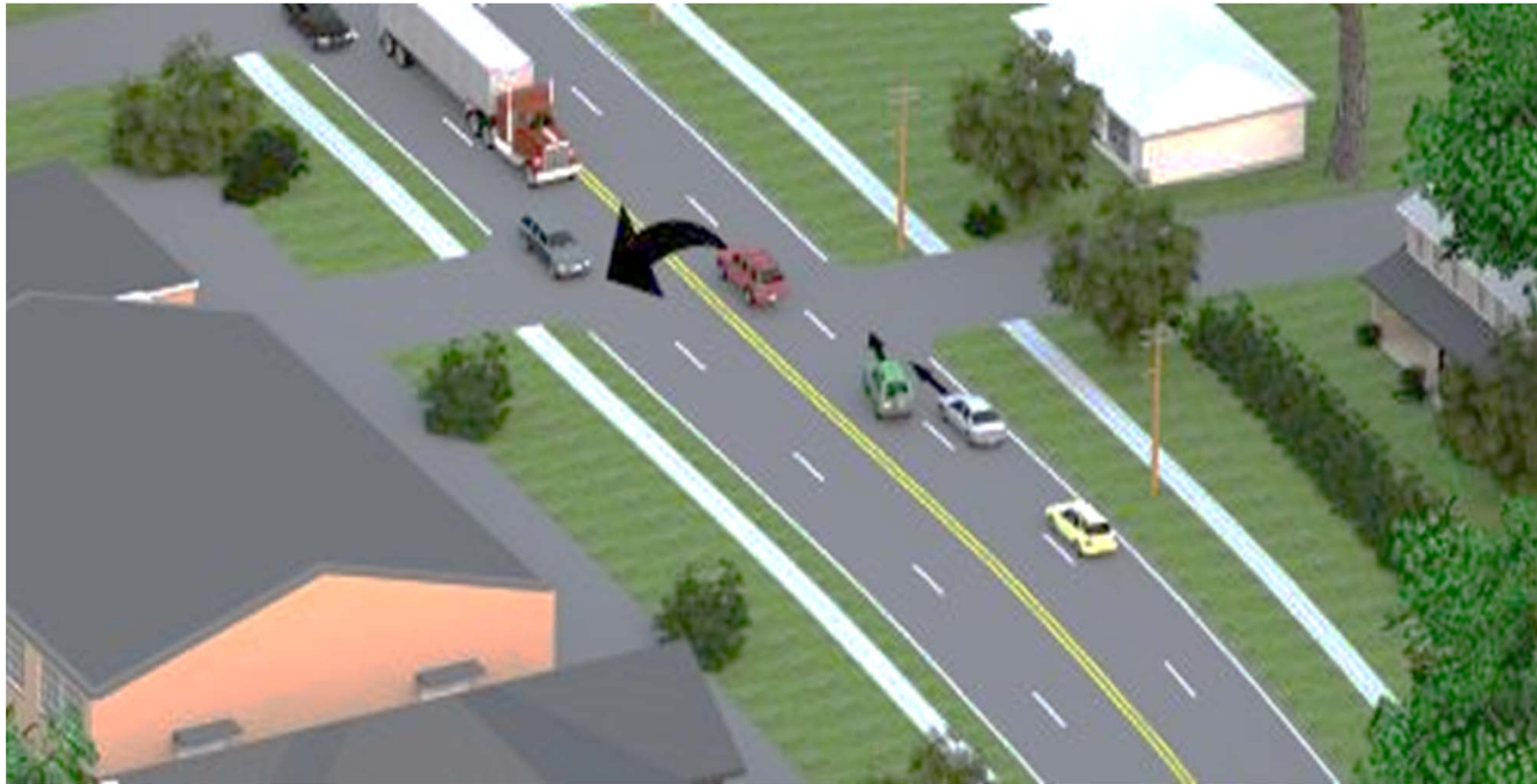
Safety- Crash Statistics

- These types of projects typically reduce total crashes **19% to 47%**
 - *Knapp, Keith et al. (November 2014). Road Diet Informational Guide (FHWA-SA-14-028)*
- **29% reduction in total crashes**
 - 15 Case Studies in Iowa, 30 sites in California and Washington
 - 7-15% Increase in Traffic
 - *Evaluation of Lane Reduction "Road Diet" Measures on Crashes, Publication Number: FHWA-HRT-10-053, June 2010, FHWA*

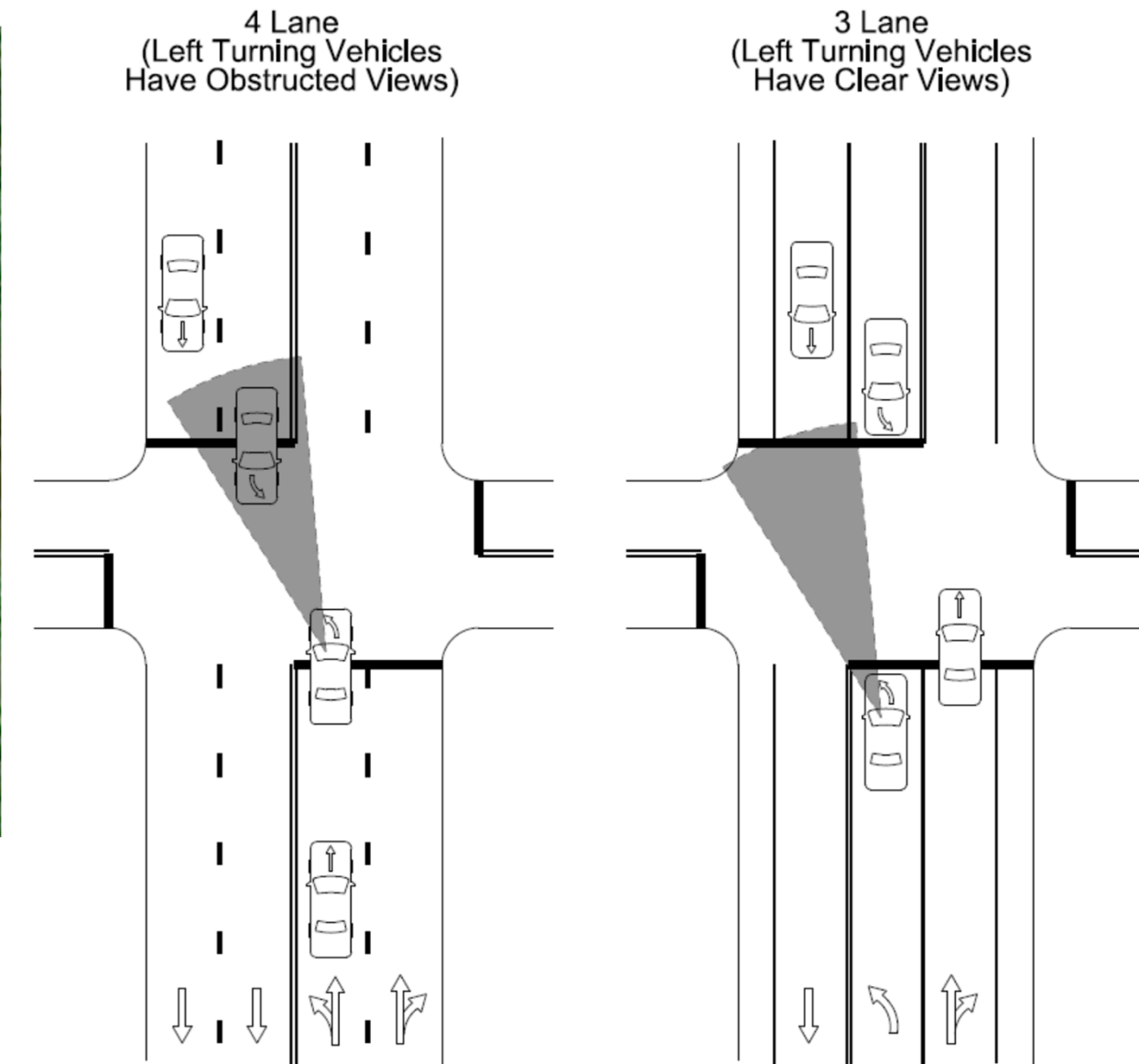


Conflict Points are areas where two vehicles cross paths. These areas are opportunities for crashes. The two figures above show the reduction in conflict points associated with a road diet.

Safety- Left Turns



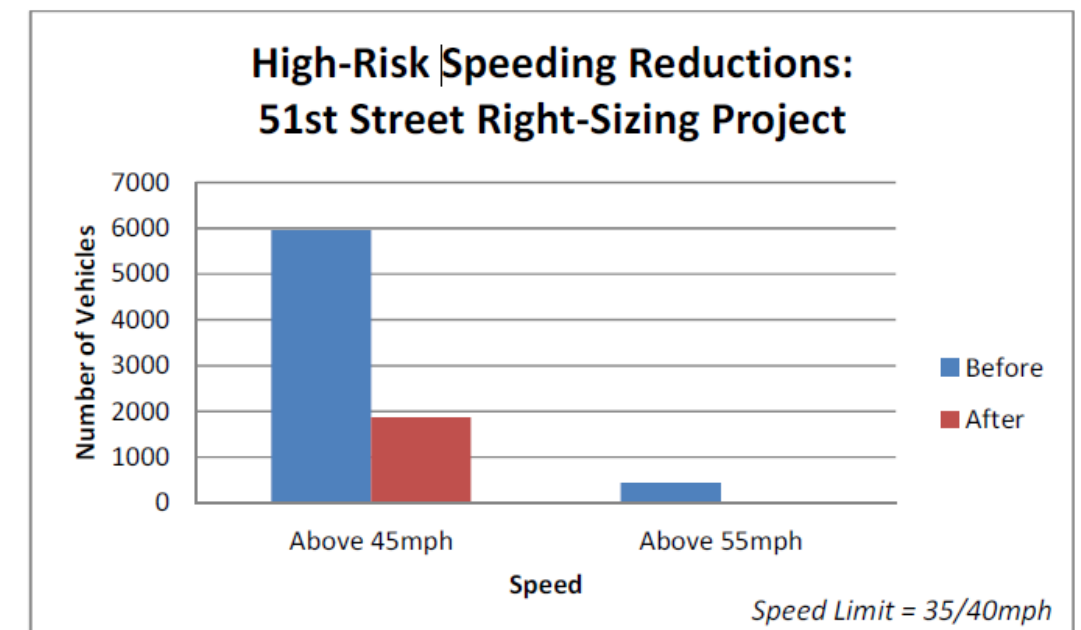
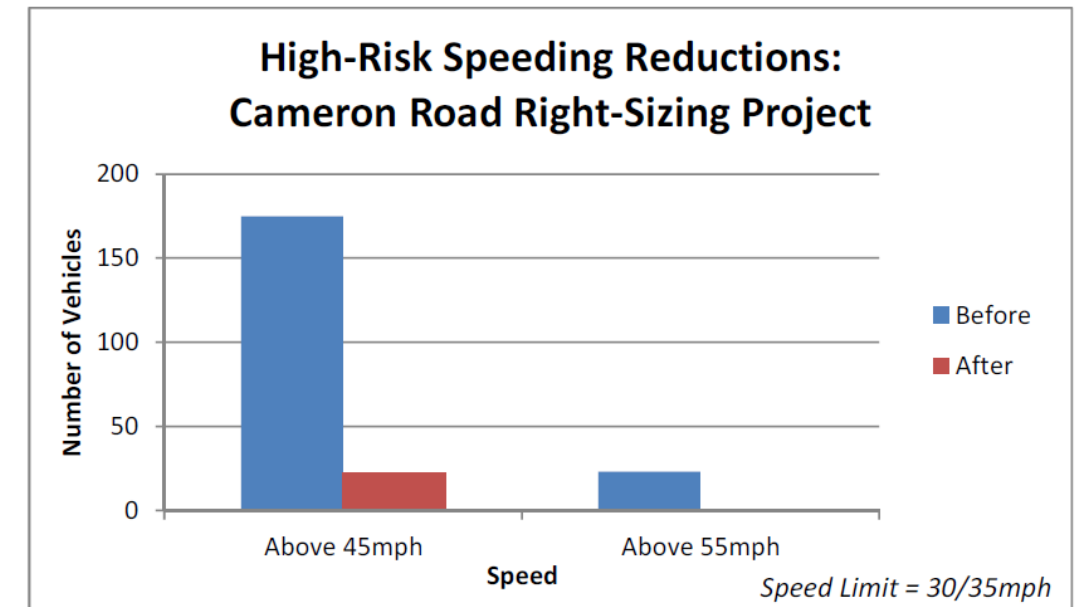
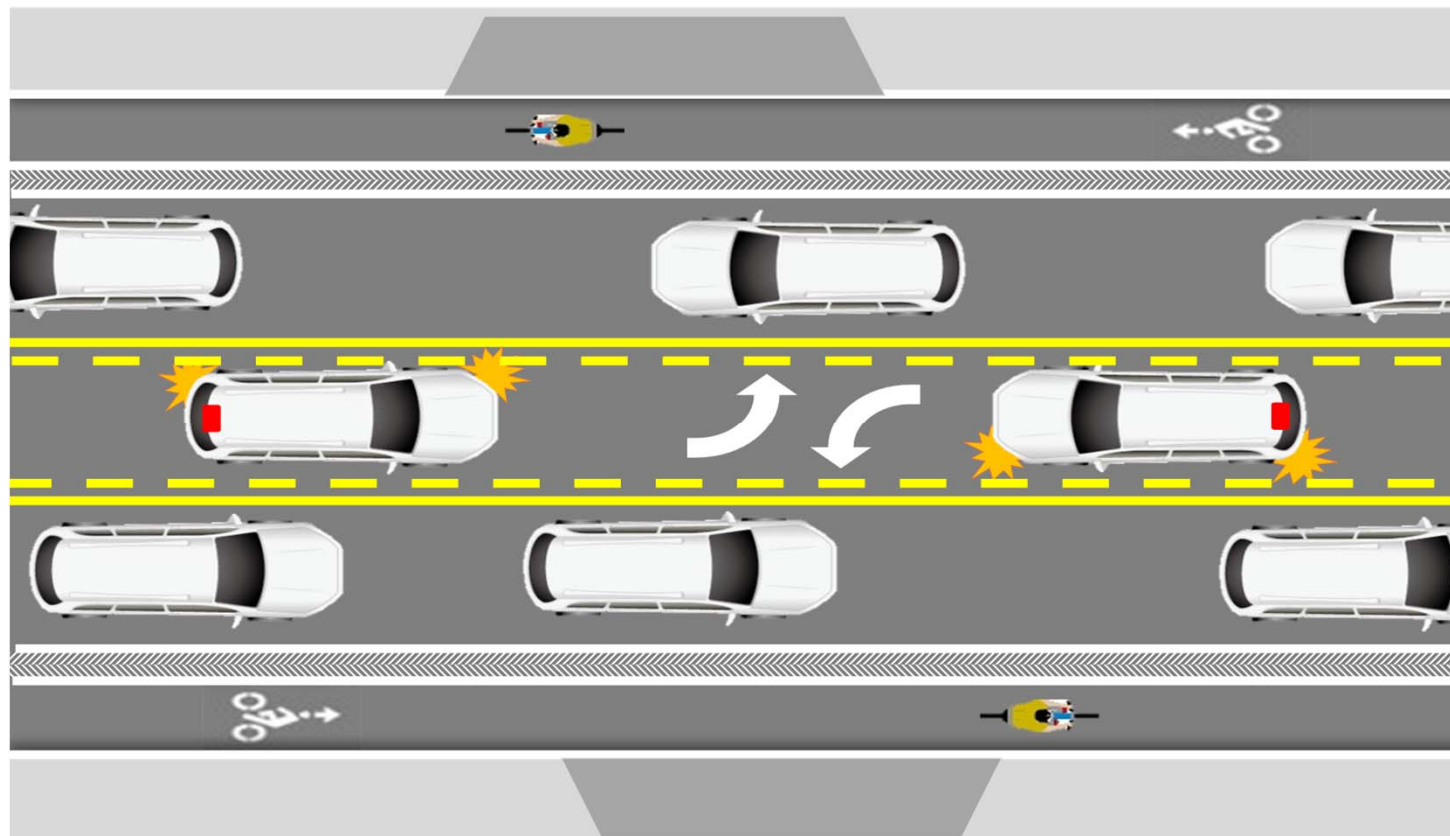
- Easier and safer left-turns
 - Opposing left turning vehicles are out of sight line
 - Only one lane of opposing traffic to cross
 - No stopping in a through lane (less rear-end crashes)
 - Less Weaving



Offset Left Turns

Lower Speeds (No Passing)

- Slower Vehicular Speeds
 - One travel lane allows for effective speed controls as there is no passing lane



Source: *Redesigning the Street*, 2014, City of Austin Texas

Garbage Collection and Transit

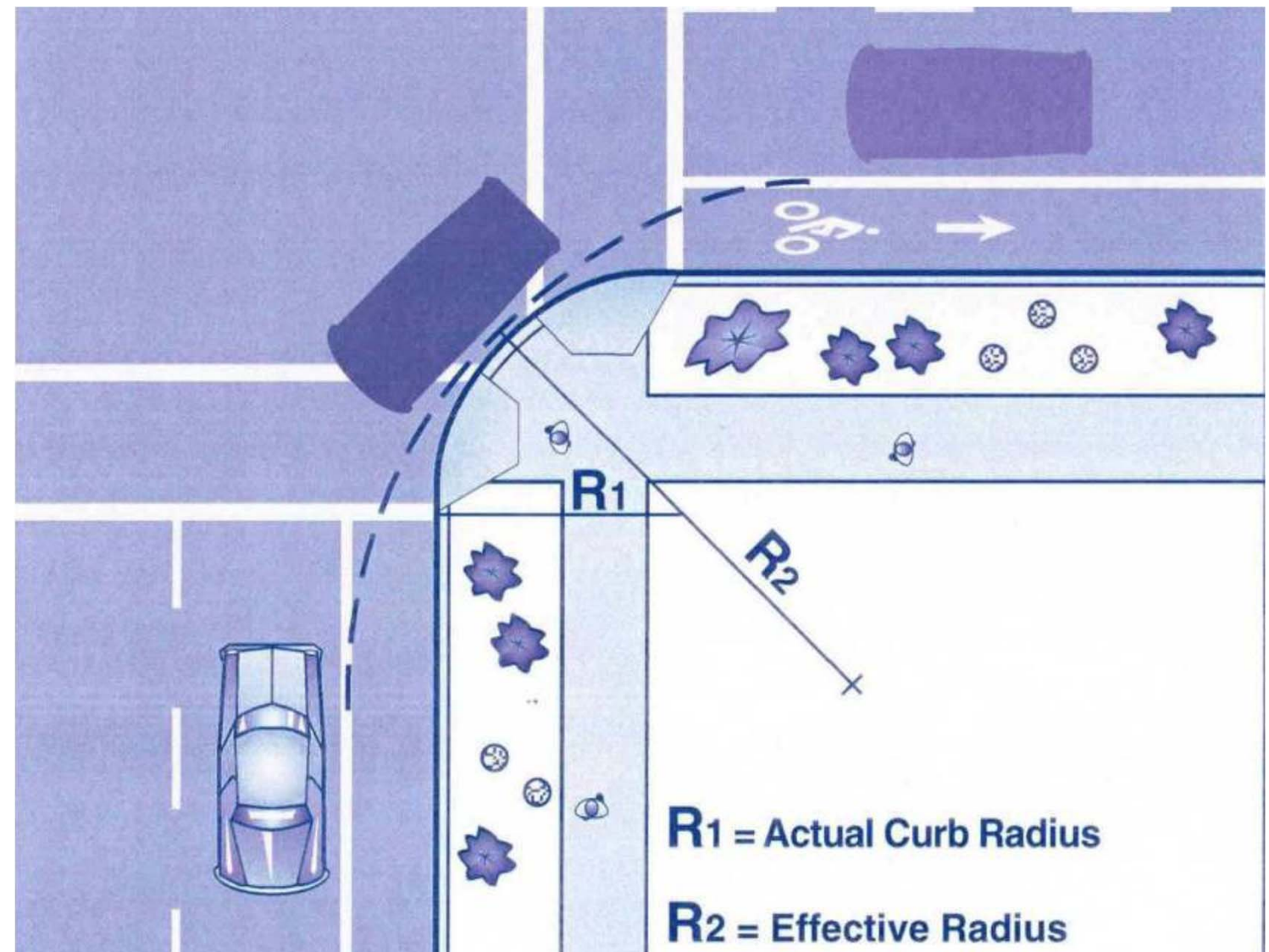
- Garbage Trucks and Busses can utilize the bike lanes for trash pickup without blocking through traffic.
- HART Route 360



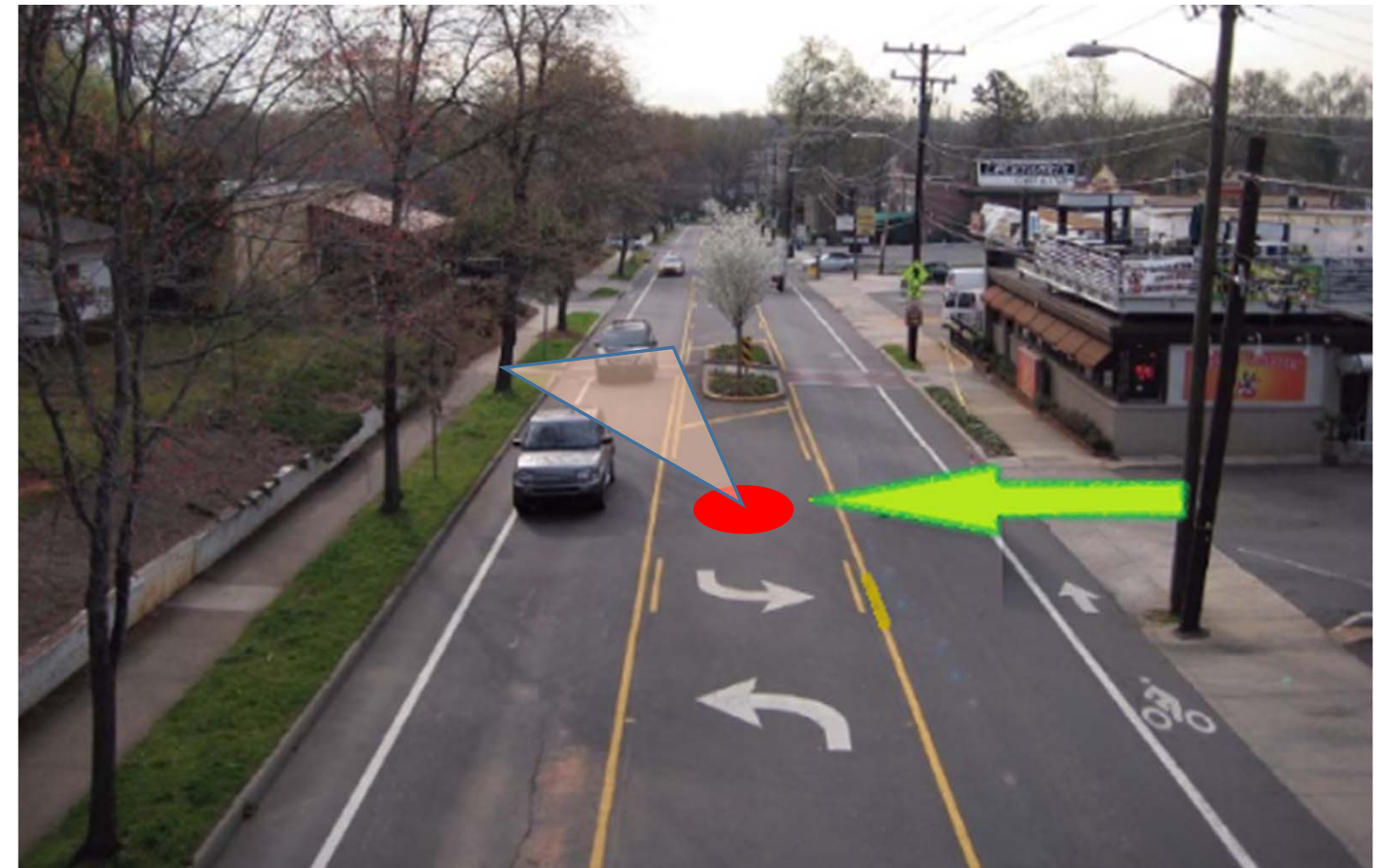
Right Turns from Side Streets and Driveways

Right turns from side streets and driveways are safer and easier to maneuver because:

- A driver only has to merge into one lane (no passing)
- There is more room to make the turn since the travel lane is separated from the curb.



Left Turns from Side Streets and Driveways



Left turns from side streets and driveways are safer and easier because a driver only crosses one lane at a time. The two-way left turn lane provides an area for a driver to pause and check oncoming traffic in the other direction.

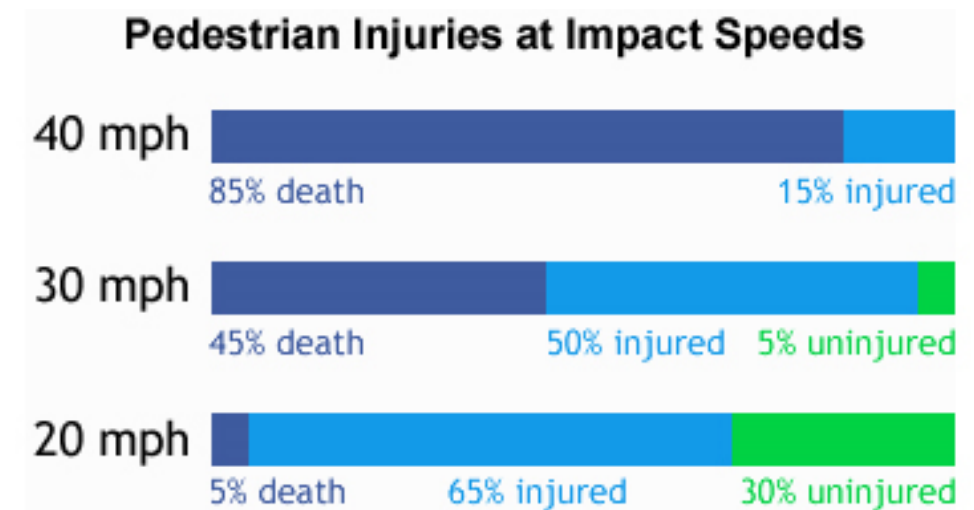
Buffered Bicycle Lanes

- Provide additional space between bicycles and vehicles
- Appeal to a wider range of bicyclists
- Benefit Pedestrians – increase space between motor vehicles and sidewalk
- Removes bikes from the vehicular lane
- Pedestrians and cyclists tend to spend more at local businesses

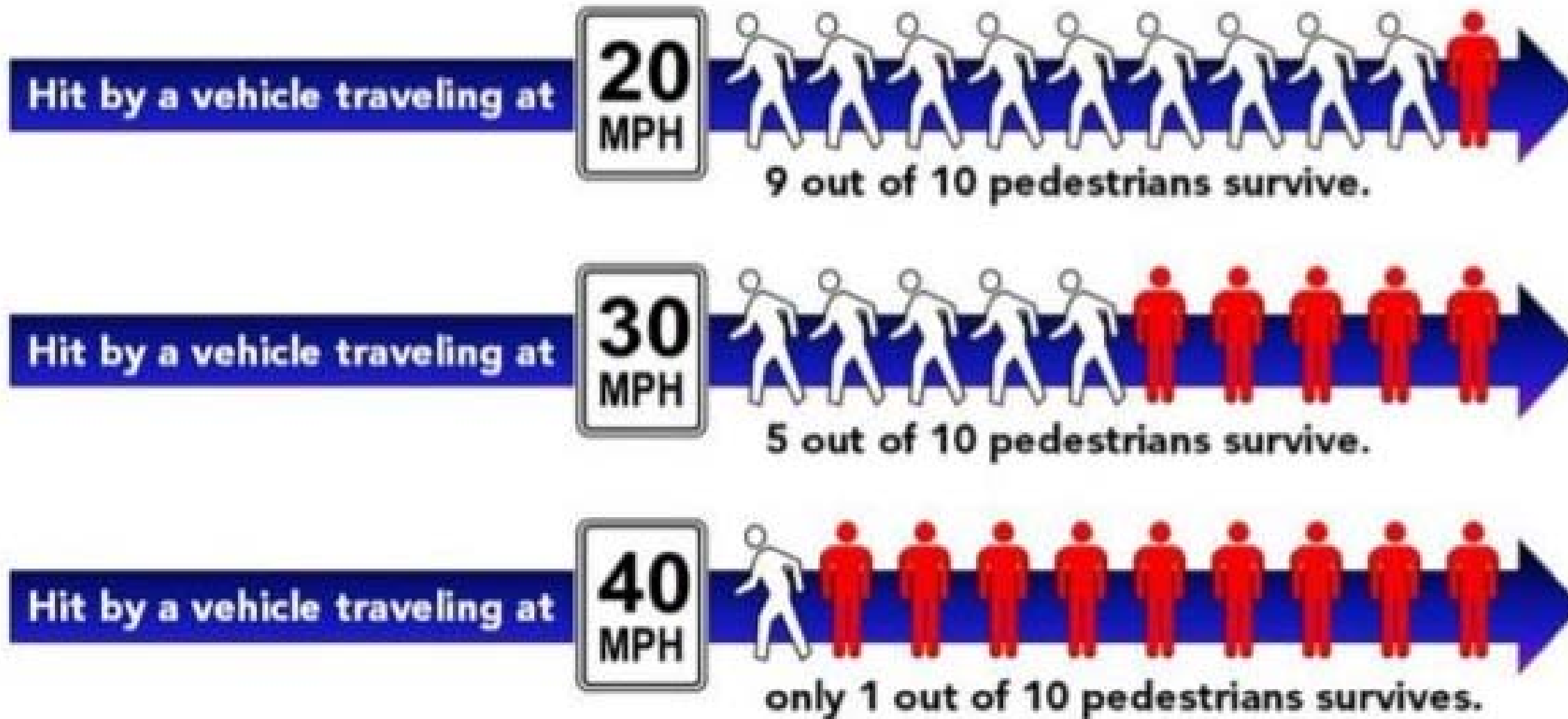


Pedestrian Experience

- Buffered bike lanes provide separation from vehicular traffic for the pedestrian.
- Crossing distances are reduced.
 - Pedestrians only have to cross three lanes of vehicular traffic.
- Speed is the biggest factor in whether a pedestrian survives a crash.



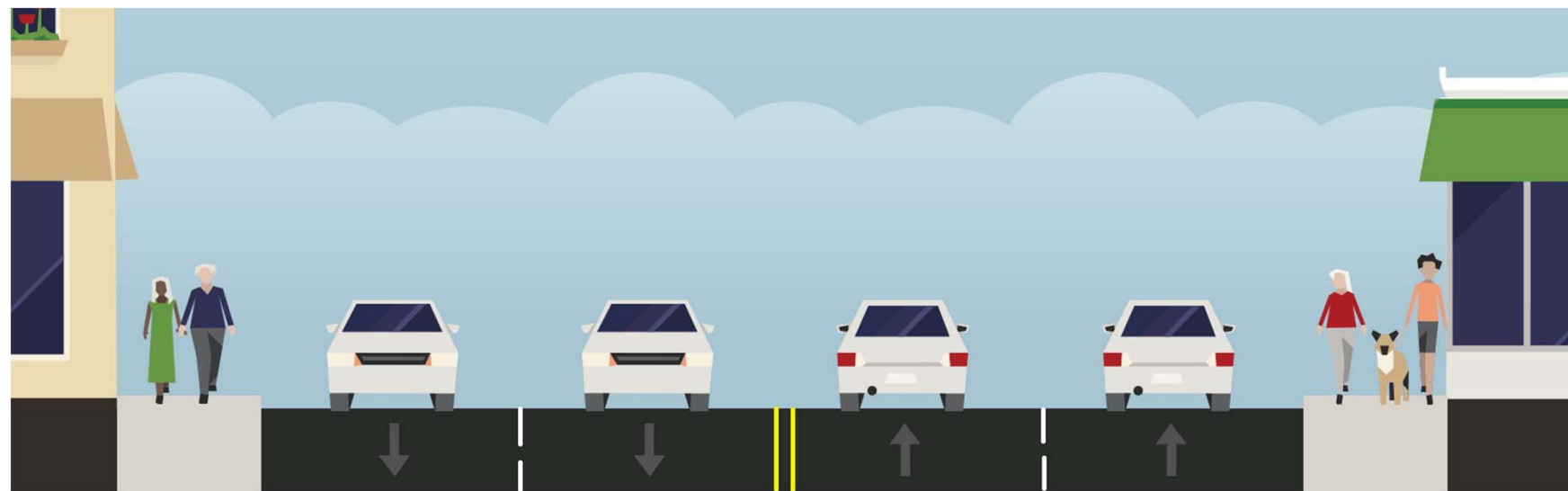
Pedestrian Safety



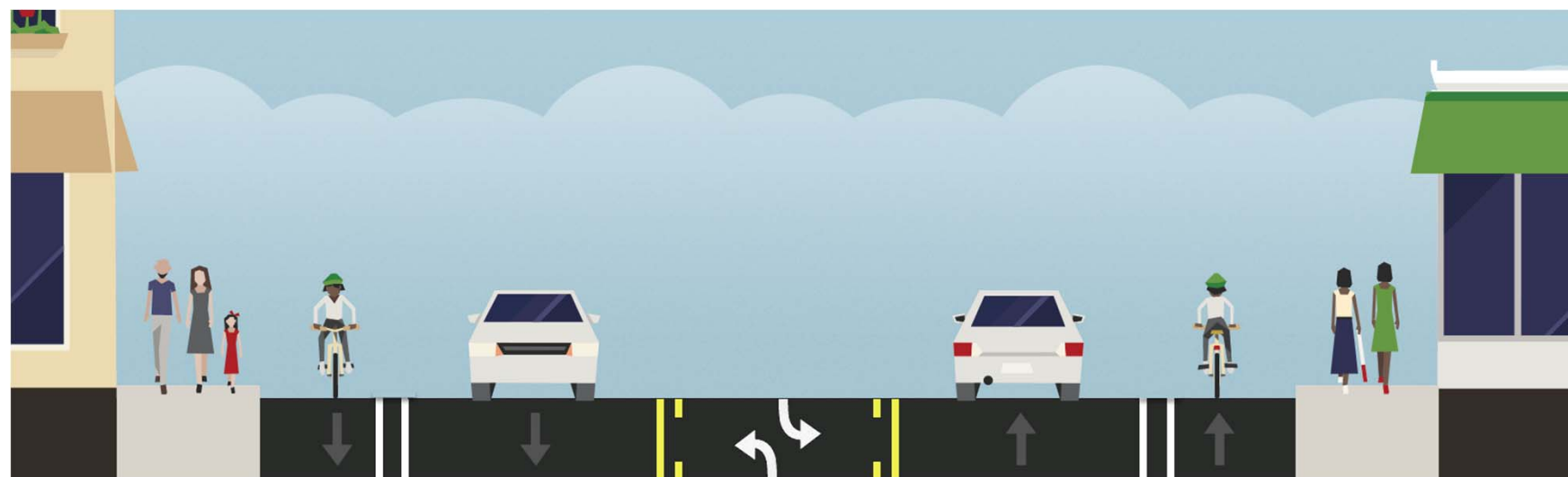
Bay to Bay Blvd (Dale Mabry Hwy to Esperanza Ave)

Typical Section

Existing



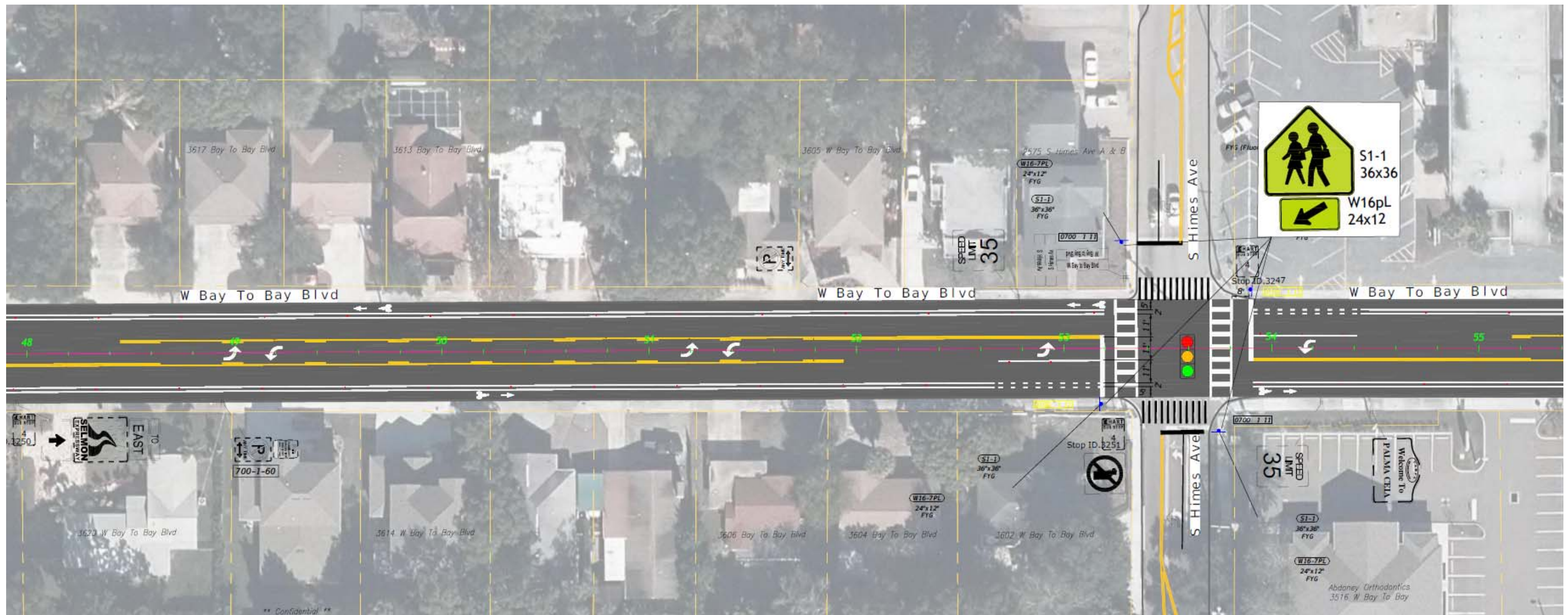
Proposed



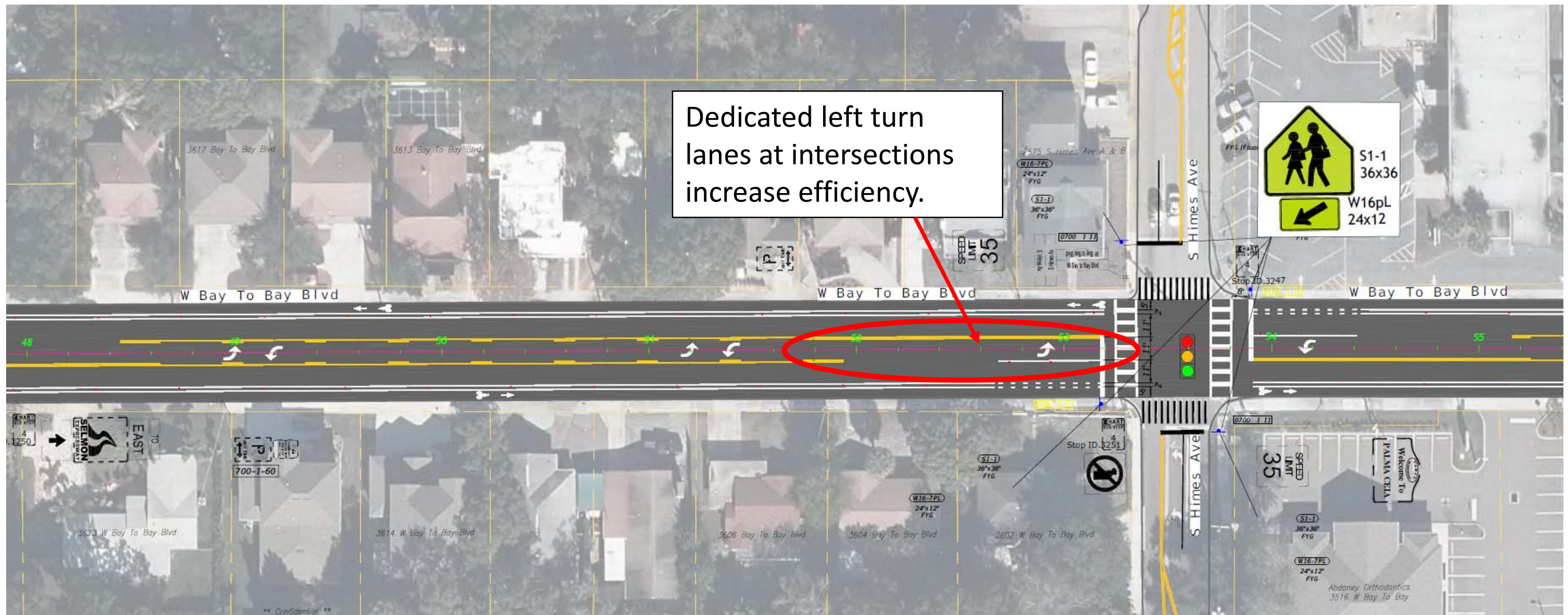
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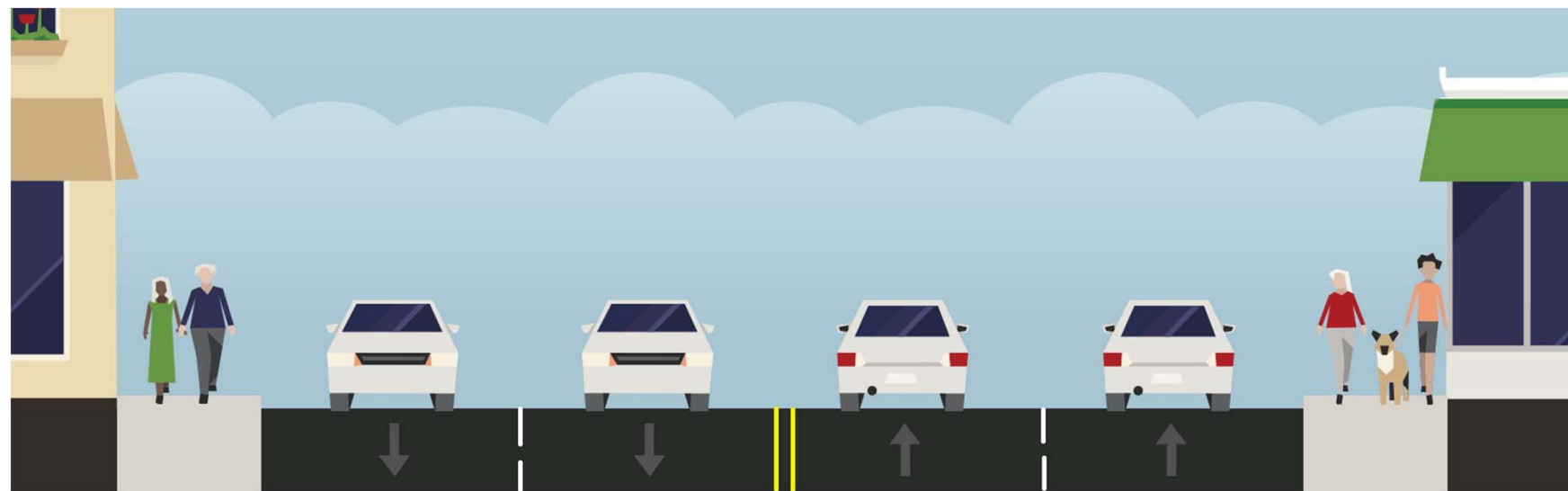
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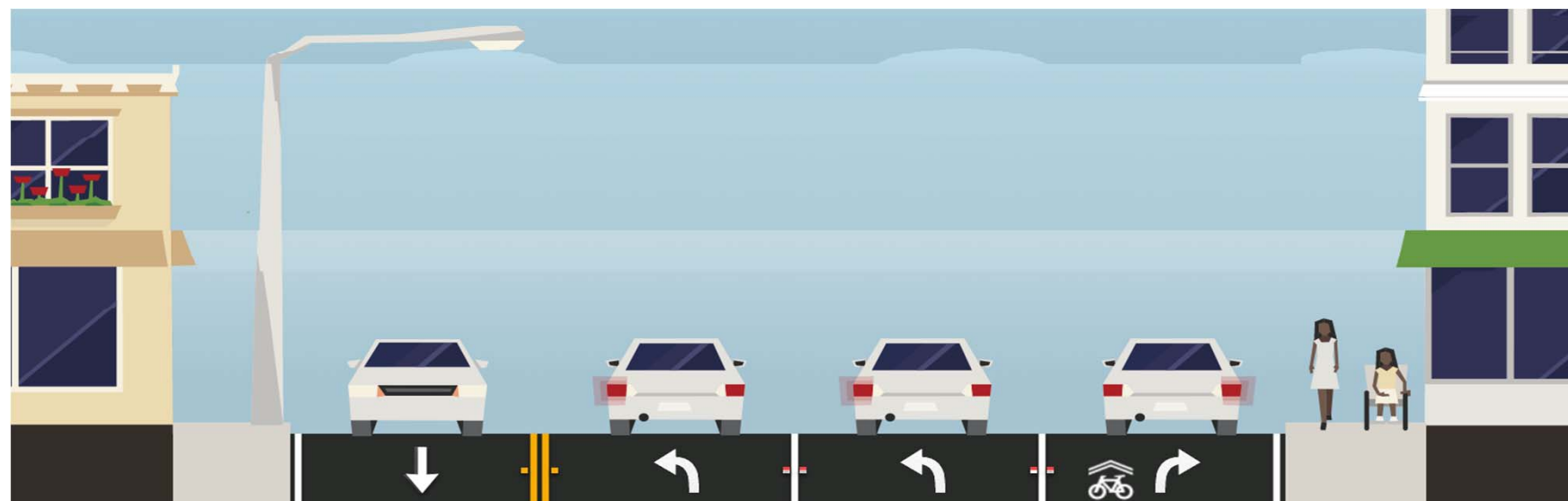
Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)

Typical Section

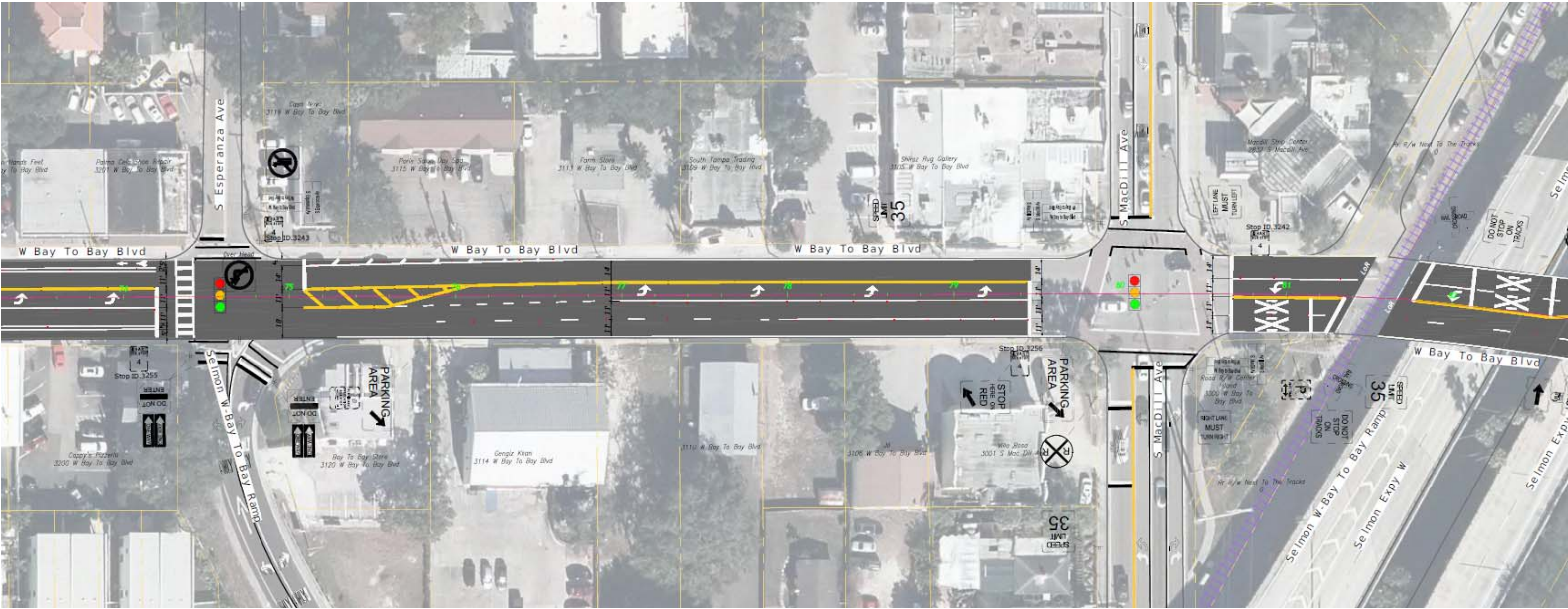
Existing



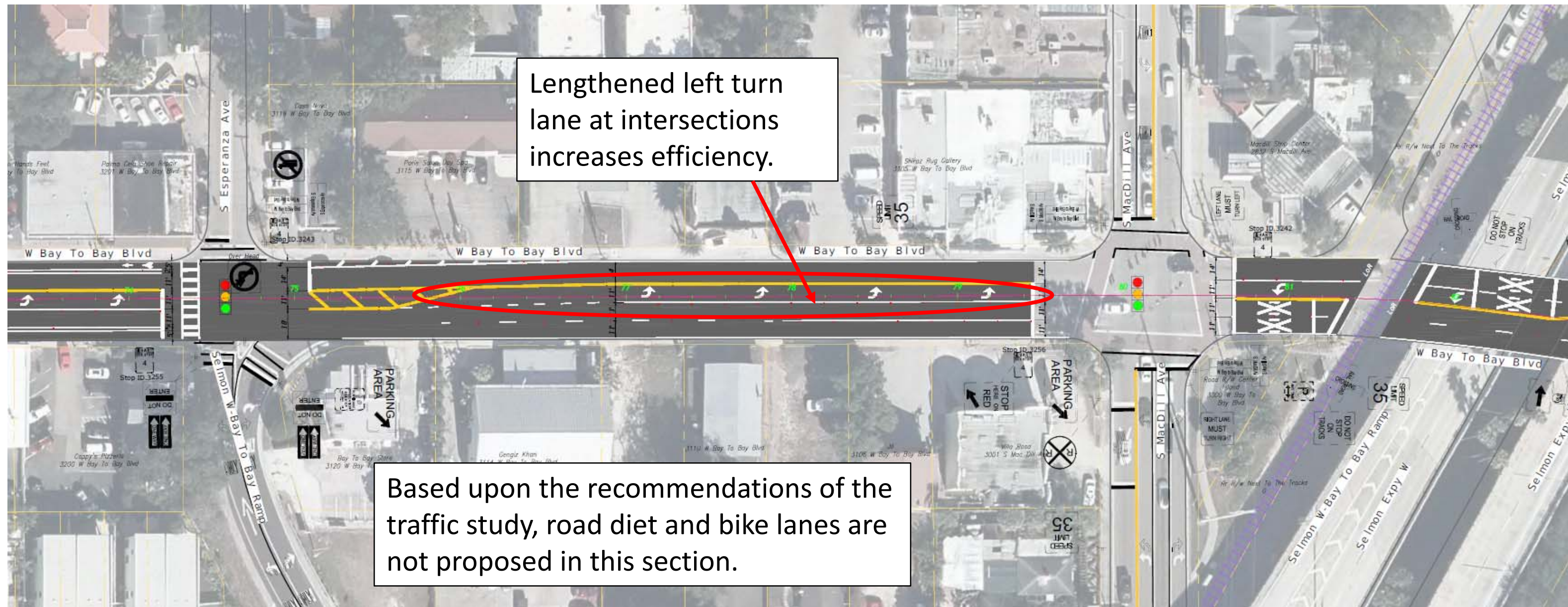
Proposed



Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



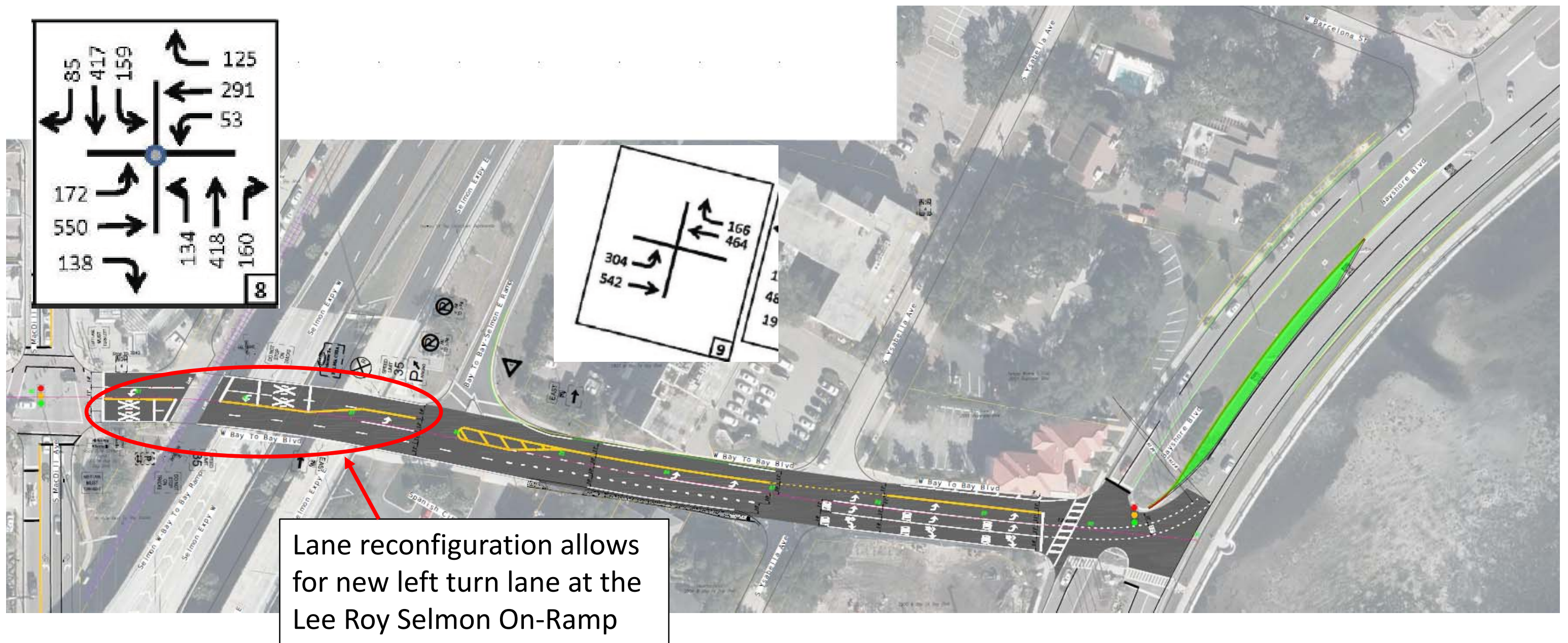
Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



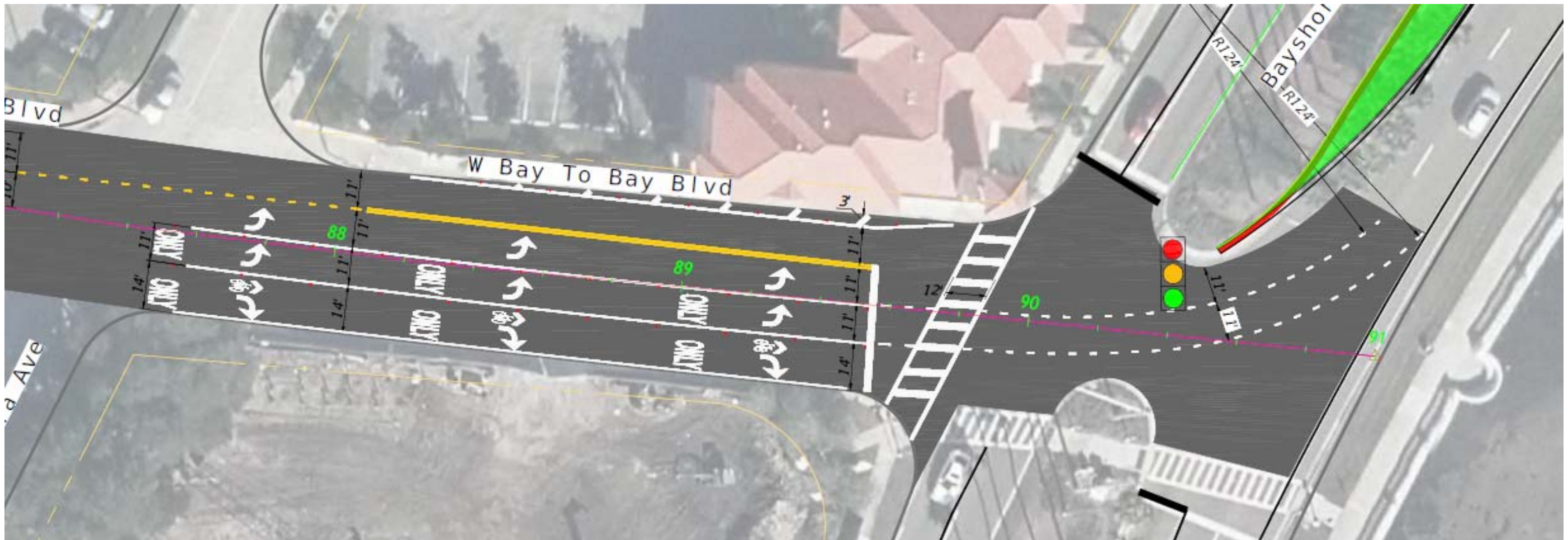
Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



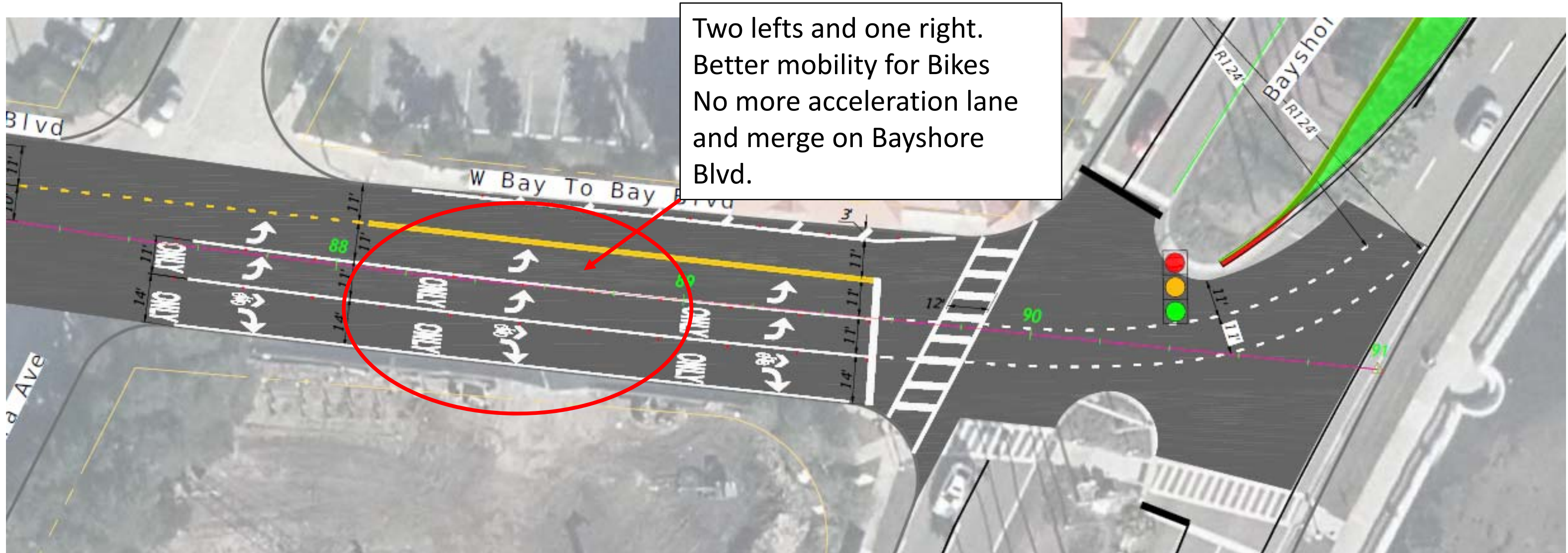
Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



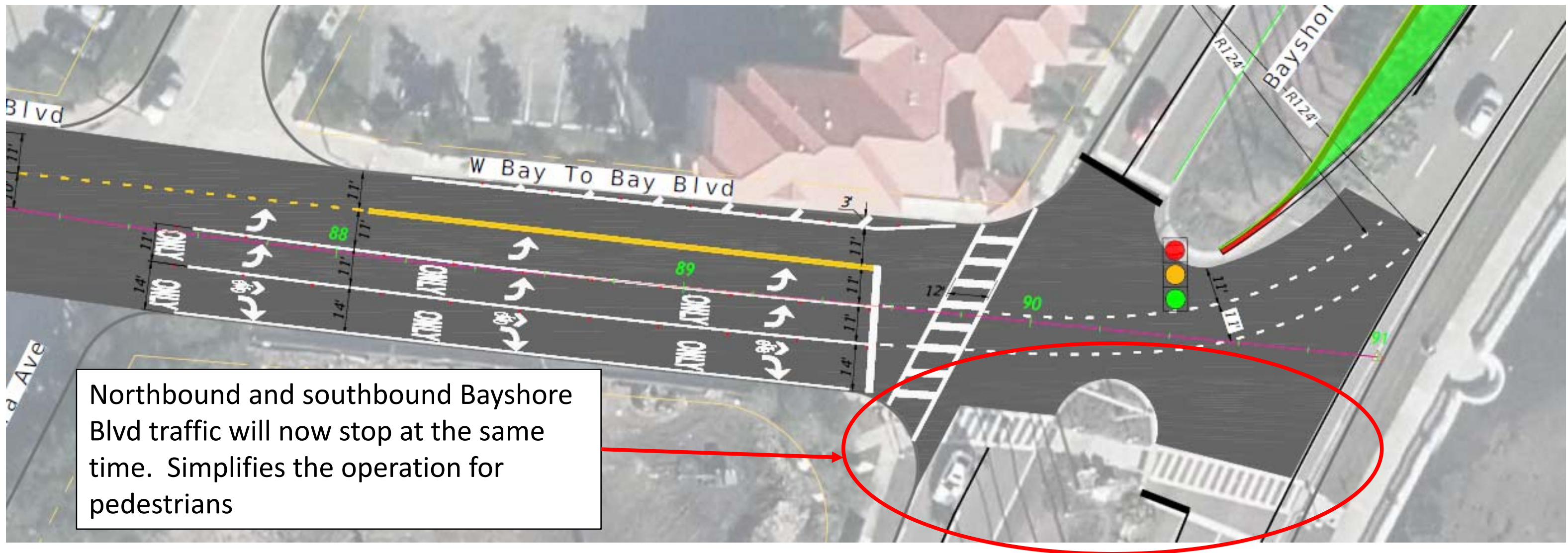
Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



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Bay to Bay Blvd (Esperanza Ave to Bayshore Blvd.)



Traffic Analysis- Travel Speeds

Manhattan Ave to Bayshore Blvd	AM Peak		Midday Peak		PM Peak	
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Existing	16 MPH	16 MPH	19 MPH	19 MPH	14 MPH	16 MPH
Future	15 MPH	16 MPH	20 MPH	18 MPH	15 MPH	15 MPH

Traffic Analysis- Level of Service

Intersection	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
	Avg. Delay per Vehicle (sec.)		Level of Service		Avg. Delay per Vehicle (sec.)		Level of Service		Avg. Delay per Vehicle (sec.)		Level of Service	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Dale Mabry Hwy	52.8		D		43.4		D		62.0		E	
Himes Ave	17.3		B		17.7		B		22.3		C	
Concordia Ave	17.6		B		2.8		A		3.7		A	
Esperanza Ave	15.1		B		13.6		B		28.0		C	
MacDill Ave	63.6		E		50.1		D		66.3		E	
Bayshore Blvd	44.7		D		23.2		C		43.5		D	

Traffic Analysis- Level of Service

Intersection	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
	Avg. Delay per Vehicle (sec.)		Level of Service		Avg. Delay per Vehicle (sec.)		Level of Service		Avg. Delay per Vehicle (sec.)		Level of Service	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
Dale Mabry Hwy	52.8	52.5	D	D	43.4	42.8	D	D	62.0	61.7	E	E
Himes Ave	17.3	20.0	B	B	17.7	17.0	B	B	22.3	28.0	C	C
Concordia Ave	17.6	18.8	B	B	2.8	3.1	A	A	3.7	6.1	A	A
Esperanza Ave	15.1	15.1	B	B	13.6	13.5	B	B	28.0	23.5	C	C
MacDill Ave	63.6	54.8	E	D	50.1	48.4	D	D	66.3	56.2	E	E
Bayshore Blvd	44.7	23.7	D	C	23.2	17.2	C	B	43.5	26.2	D	C

Summary

- Current four-lane section is inefficient.
- Major signalized intersections control capacity, not lane configuration between intersections.
- Addition of Center Turn Lane alone improves operational and safety benefits of corridor.
- Proposed changes do not diminish vehicular operations, but significantly improve safety and efficiency for pedestrians and cyclists.
- Proposed changes east of Esperanza Ave. will improve operations of those intersections by a full level of service.

Next Steps

- Two week comment period
 - Friday, Feb. 23, 2018
- City response to comment
 - Friday, March 16, 2018

Resources and Links

Project Website:

<https://www.tampagov.net/tss-transportation/info/projects/bay-to-bay>

FHWA Road Diet Information:

https://safety.fhwa.dot.gov/road_diets/

https://safety.fhwa.dot.gov/road_diets/guidance/info_guide/

https://safety.fhwa.dot.gov/road_diets/resources/fhwas_a16074/fhwas_a16074.pdf

https://safety.fhwa.dot.gov/road_diets/resources/pdf/fhwas_a17021.pdf

FHWA Videos:

<https://www.youtube.com/watch?v=n3ucpaCigig>

https://www.youtube.com/watch?v=m_xTUCPWG78

Case Studies:

https://safety.fhwa.dot.gov/road_diets/case_studies/

http://www.austintexas.gov/sites/default/files/files/Lane_Conversion_Report_2015-06-01.pdf

Other Links:

<https://www.citylab.com/design/2014/09/so-what-exactly-is-a-road-diet/379975/>

http://www.pedbikeinfo.org/data/faq_details.cfm?id=3479

https://nacto.org/wp-content/uploads/2015/04/safety_and_operation_analysis_yles.pdf

Contact Information

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