

# Municipal Advisory Committee

May 6, 2021



- I. Call to Order and Pledge of Allegiance
- II. Chairman's Comments
- III. Agenda Review
- IV. Roll Call
- V. Public Comments on Items for Review/Discussion
- VI. Agency Reports
- VII. Items for Review/Discussion
- VIII. Presentations and Status Reports**
- IX. General Information
- X. Upcoming Meetings
- XI. Member Comments
- XII. Public Comments
- XIII. Adjournment



# AGENDA

# MetroPlan Orlando Board's Emphasis Areas

May 6, 2021



# Emphasis Areas



Trail  
Connectivity

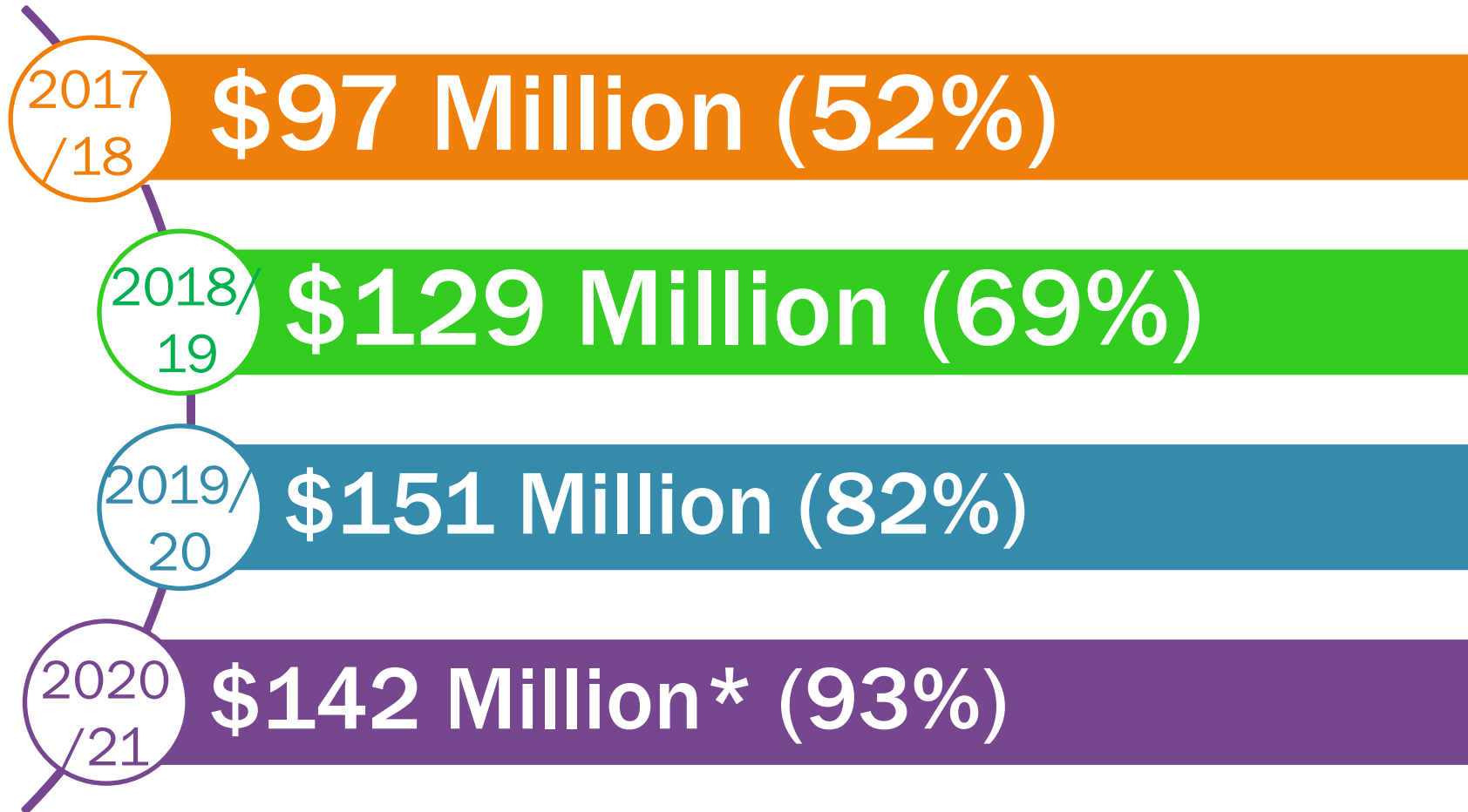
Engage  
Younger  
Population

Complete  
Streets

Safety

SunRail  
Connectivity

# How Did We Do?



\* Tentative Work Program has estimates \$16M less over this 5 year period than last

# 2045 MTP Goals



Health &  
Environment



Safety &  
Security



Reliability &  
Performance








Access &  
Connectivity



Investment &  
Economy

# 2045 MTP Goals



		Safety	Trail Connectivity	Complete Streets	SunRail Connectivity	Engage Younger Population
	Health & Environment	✓	✓	✓	✓	✓
	Safety & Security	✓		✓		✓
	Reliability & Performance		✓	✓	✓	
	Access & Connectivity	✓	✓	✓	✓	✓
	Investment & Economy		✓	✓	✓	✓

# 2045 MTP Performance Measures



Goal Area	Evaluation Criteria
<b>Safety &amp; Security</b>	Crash Rate
	Fatal & Serious Injury Crash Rates
	Number of Pedestrian & Bicycle Crashes
	Evacuation Route Designation
<b>Reliability &amp; Performance</b>	Travel Time Reliability (Automobiles)
	Travel Time Reliability (Trucks)
	Fiber Optic Presence along Roadway
	Segment Actively Monitors/Managed
	Relative Change: Future Congested Speeds
<b>Access &amp; Connectivity</b>	Transit System Headways
	Population: ½ Mile of Transit
	Jobs: ½ Mile of Transit
	Food & Healthcare Locations: ½ Mile of Corridor
	Cultural & Recreational Locations: ½ of Corridor
	Centrality Analysis Score (Critical Sidewalk Need)

Goal Area	Evaluation Criteria
<b>Health &amp; Environment</b>	Bicycle Level of Traffic Stress
	Residential Density: ¼ Mile of Multimodal Facility
	Non-Residential Density: ¼ Mile of Multimodal Facility
	Public Health Indicator Rates
	Intensity & Proximity: Environmental Justice Populations
	Relative Change: Vehicle Miles Traveled
<b>Investment &amp; Economy</b>	Percentage of Commercial Vehicle Traffic (% Truck)
	Statewide Truck Bottlenecks
	Intensity & Proximity: Freight Intensive Land Uses
	Relative Change: Vehicle Hours Traveled
	Cost Burdened Households: ¼ Mile of Corridor
	Percentage of Visitor Traffic
	Cost of Congestion



# 2045 MTP Goals in Order of Importance



1	Investment & Economy	3.24
2	Health & Environment	3.13
3	Access & Connectivity	3.02
4	Reliability & Performance	2.95
5	Safety & Security	2.77

Less than a half point difference

# 2045 MTP Goals in Order of Importance



## Pre-Pandemic

- 1 Access & Connectivity
- 2 Investment & Economy
- 3 Safety & Security
- 4 Reliability & Performance
- 5 Health & Environment

## Post-Pandemic

- 1 Investment & Economy
- 2 Health & Environment
- 3 Access & Connectivity
- 4 Reliability & Performance
- 5 Safety & Security

# Ranking of Goal Area

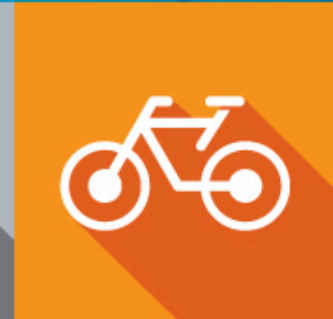


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	Cost of Congestion

# Thank You

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# Metro Orlando Pedestrian Fatality Trends & Issues



April 2021

# This Presentation

## Dangerous By Design

- Pedestrian Danger Index
- Scenarios

## Safe System Approach

## Crossing Law

## Crash Factors



# Pedestrian Danger Index

Pedestrian Fatalities

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(Population X 100,000)

÷

% Walking to Work

Dangerous By Design includes Lake  
County for the Orlando metro area



# Scenarios



## Accounting for Visitor Population

Without Visitor Population	With Visitor Population	Change
PDI = 284	PDI = 259	-9%

From 2012-13 Study of Metro Orlando Residence of Pedestrians Involved in Fatal Crashes	Pedestrians Fatalities	
	Number	Percent
Reside in Orlando Metro	77	79%
Florida, Outside Metro Orlando	14	14%
USA, Outside Florida	4	4%
Foreign	-	0%



# Scenarios



## Only Increase Walking to Work

Average PDI 2011-13	Average PDI 2017-19	Change
245	282	15%
Walk-to-Work 1.1%	Walk-to-Work 1.7%	+21%

Walk-to-Work 2011-13 1.1%	Walk-to-Work 2017-19 <b>+100%</b> 2.2%	Change
PDI = 245	PDI = 178	-27%

# Scenarios



## Only Decrease Fatalities 20%

Average Yearly Fatals 2011-13 60	Average Yearly Fatals 2017-19 Reduced 20% = 48	Change
PDI = 235	PDI = 136	-42%

# A New Safety Principle



New 2021 Florida Highway Safety Plan introduces the **Safe System** approach ...

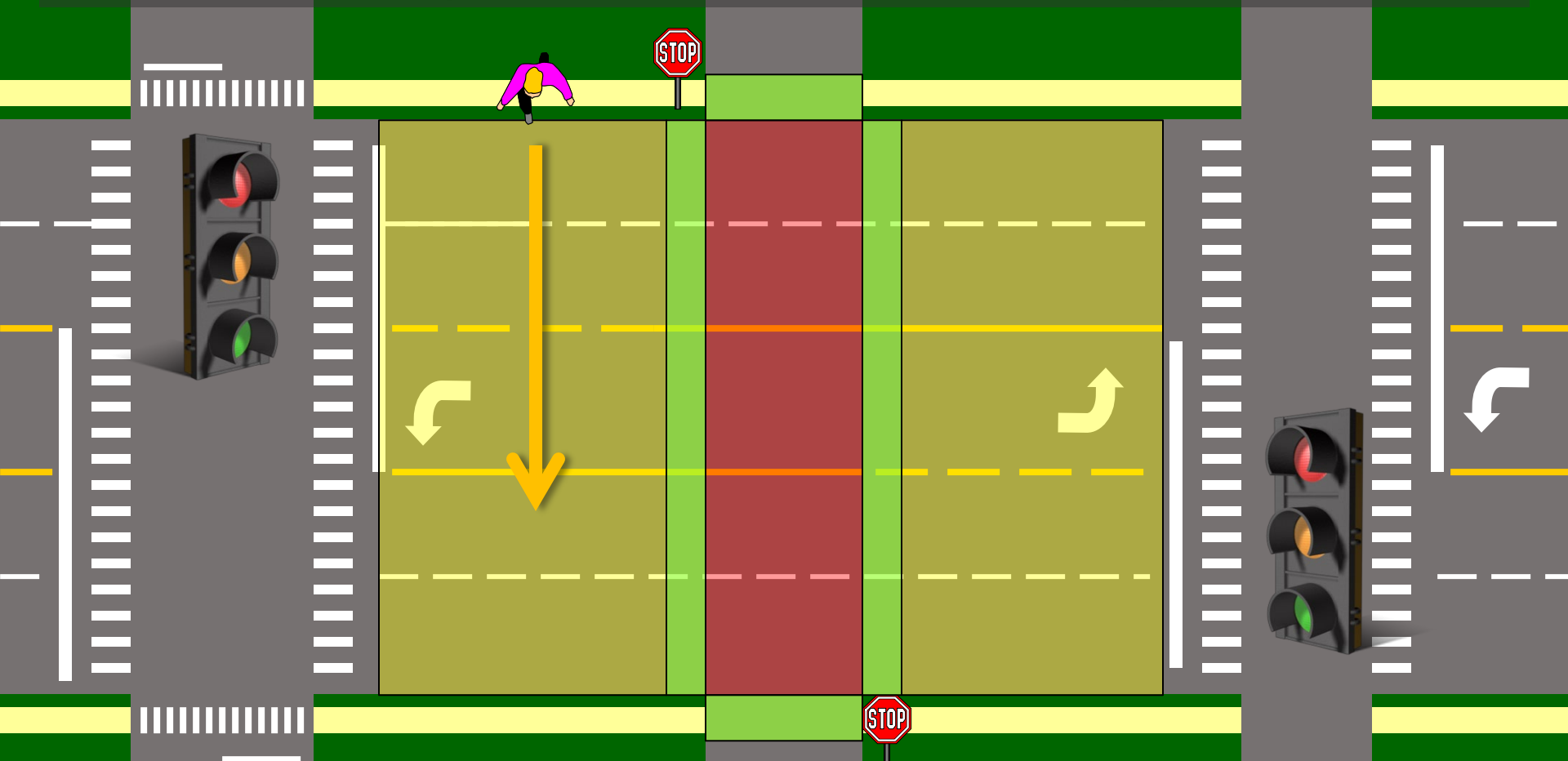
*“... which acknowledges that **humans make mistakes**, the human body is vulnerable, and that we should design and operate our transportation system to ensure that if crashes do occur they do not result in serious human injury.”*

# Pedestrian Fatality Factors

- Failure to Yield
- Darkness
- Distraction
- Speed

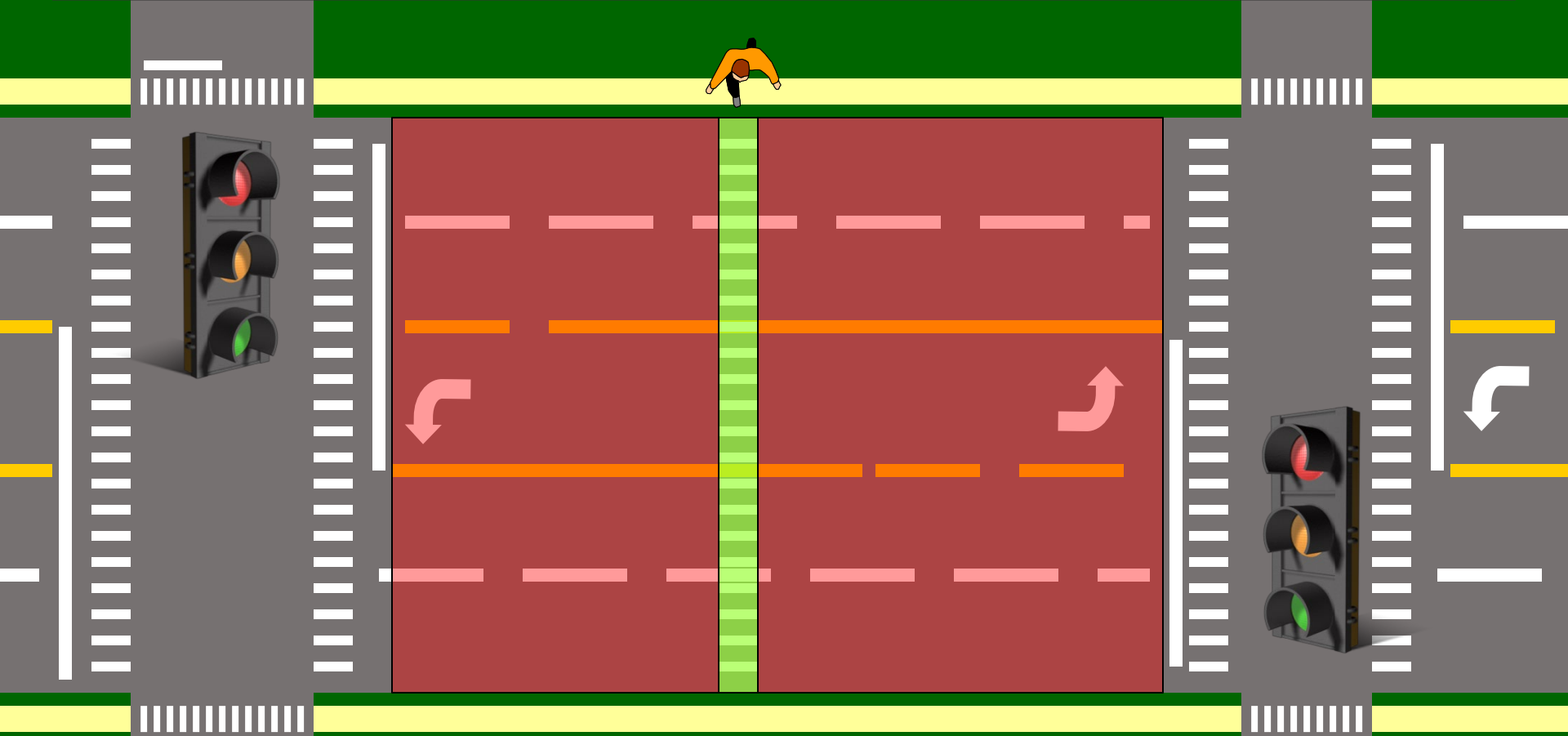


When at least one of the nearest intersections are not signalized, pedestrians may cross mid-block, provided they yield to traffic.



A crosswalk is the continuation of the lateral lines of the sidewalk across the roadway.  
Most crosswalks are unmarked.

Between adjacent signalized intersections, pedestrians may only cross in marked crosswalks.



-  Motorists Yield to Pedestrians
-  Pedestrians May Not Cross

“...humans make mistakes...”



# Pedestrian Fatality Factors



## Night Versus Daytime

Night		Avg. 2011-13	Avg. 2017-19	Change
	All Crashes	277	316	+14%
	Fatals	38	65	+71%
	% Fatal	14%	21%	
Day		Avg. 2011-13	Avg. 2017-19	Change
	All Crashes	360	382	+6%
	Fatals	8.7	9.3	+7%
	% Fatal	2%	2%	Pop. +14%



# Pedestrian Fatality Factors



## Pedestrian Failure to Yield, Mid-Block

		Avg. 2011-13	Avg. 2017-19	Change
Night	All Crashes	98	103	+5%
	Fatals	15	27	+84%
	% Fatal	15%	26%	
	<b>Night, With Street Lighting +148%</b>			
		Avg. 2011-13	Avg. 2017-19	Change
Day	All Crashes	72	63	-13%
	Fatals	1.7	2.3	40%
	% Fatal	2%	4%	
Pedestrian Failure to Yield as % of All		29%	25%	

# Pedestrian Fatality Factors



## Distracted Driving

Pedestrian Crash Factor (All Injury Levels)	Avg. 2011-13	Avg. 2017-19	Change
All Pedestrian, Public ROW, No Freeway	691	741	+7%
Motorist Failure to Yield, Distracted (All Lighting)	17	38	<b>+119%</b>
Night, Distracted Driving	18	23	<b>+27%</b>
Smart Phone Ownership*	44%	78%	<b>+77%</b>

\* Pew Research

# Pedestrian Fatality Factors



## Alcohol & Drugs, Hit & Run

Pedestrian Crash Factor (All Injury Levels)	Avg. 2011-13	Avg. 2017-19	Change
All Pedestrian Public ROW, No Freeway	691	741	+7%
Alcohol or Drugs	61	43	-29%
Hit & Run	145	174	+21%

# Pedestrian Fatality Factors



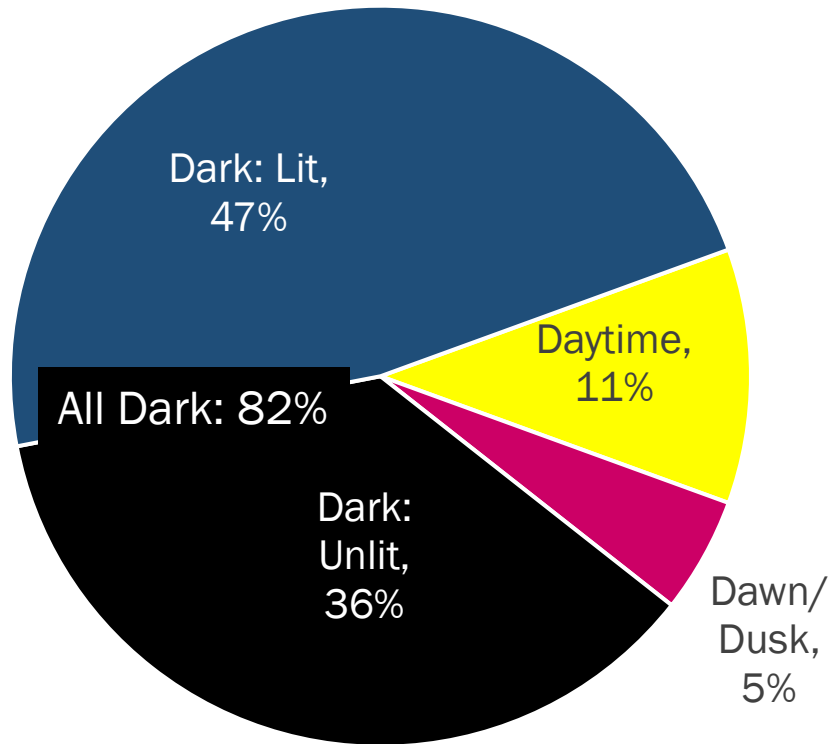
## Motorist Failure to Yield

		Avg. 2011-13	Avg. 2017-19	Change
Motorist Failure to Yield	All Crashes	158	197	+25%
	Daytime Only	73	135	+85%
	Fatals	5.7	6	+5%
	% Fatal	4%	3%	

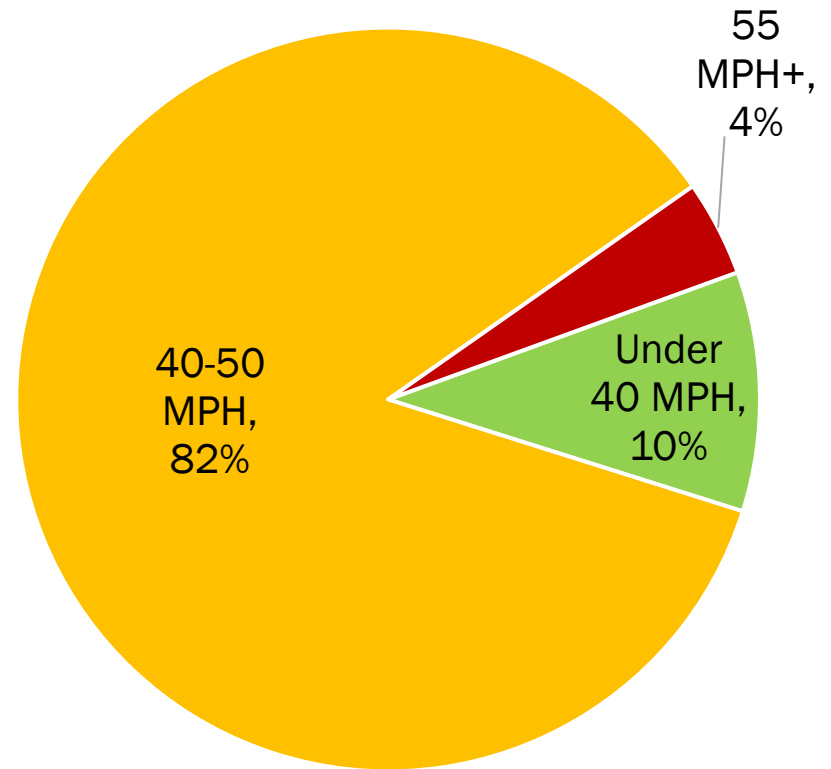
# Pedestrian Fatalities: Lighting & Speed

## Crossing Roadway – Vehicle Not Turning

### Lighting



### Posted Speed



## Lee Vista Blvd., Orlando

Median to Curb = 26 ft.

Curb to Curb = 99 ft.



## Oak Street, Bozeman, MT

Median to Curb = 28 ft.

Curb to Curb = 88 ft.



US 441,  
Apopka  
Curb to Curb = 62 ft.



US 12,  
Missoula, MT  
Curb to Curb = 86 ft.



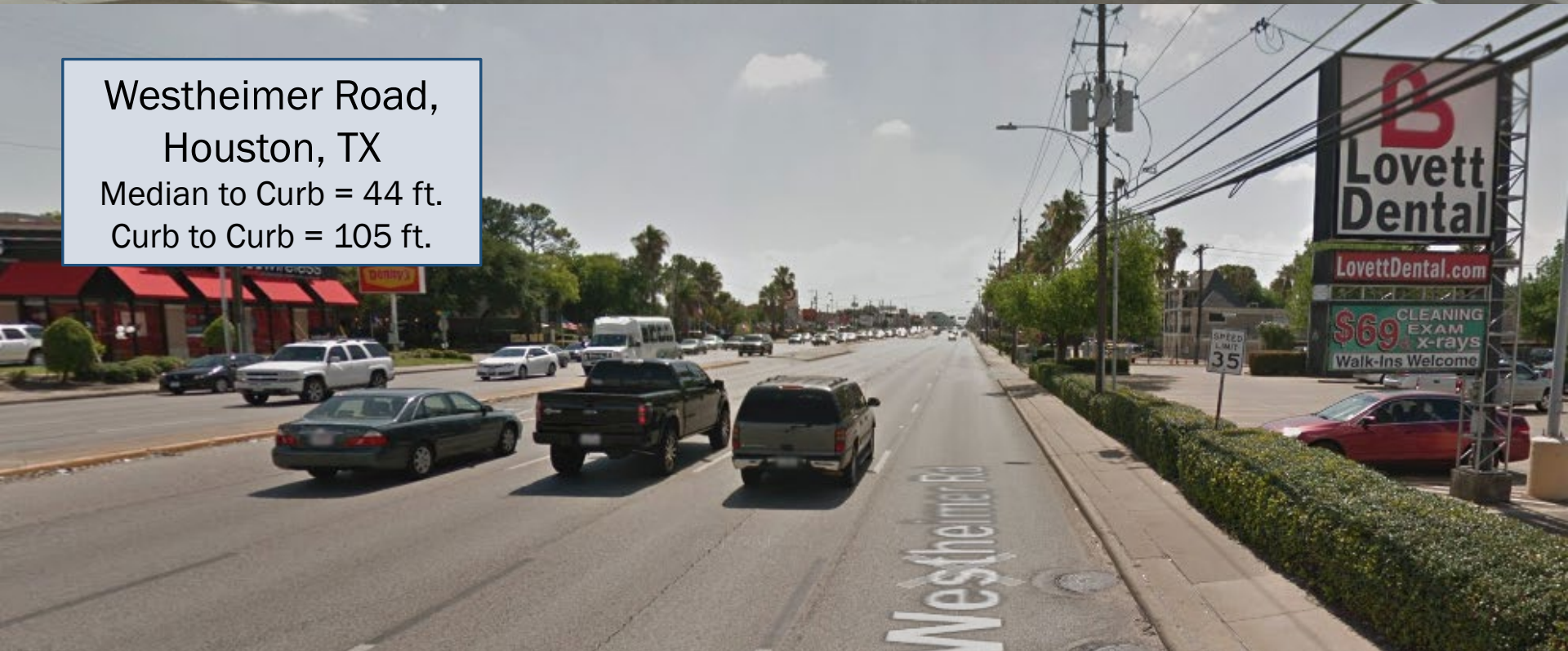
US 192,  
Kissimmee

Median to Curb = 42 ft.  
Curb to Curb = 96 ft.



Westheimer Road,  
Houston, TX

Median to Curb = 44 ft.  
Curb to Curb = 105 ft.





# The Deadly Trio

**Darkness**  
+  
**Distraction**  
+  
**Speed**

+ Fewer Regular Passenger Cars  
More Trucks and SUVs



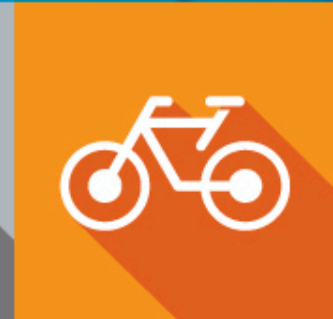
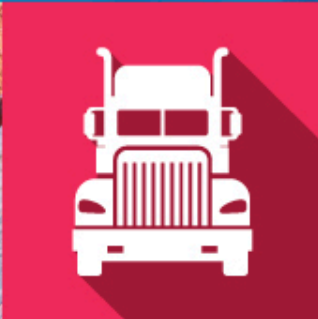
# Reduced Night-time Posted Speed

- US 1 on Big Pine Key
- 45 MPH Daytime
- 35 MPH Night-time
- To protect endangered key deer



# Thank You

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## LYNX AV Services Project

### MetroPlan CAC Presentation

*April 28, 2021*



## Introduction



LYNX, the City of Orlando, and MetroPlan Orlando have partnered on an automated vehicle (AV) Concept of Operations Study to examine the potential deployment of AVs in existing or future LYNX transit services.

## Intent of the Study

The intent of the study was to develop a Concept of Operations and a draft scope for deployment of AVs at LYNX in order to:

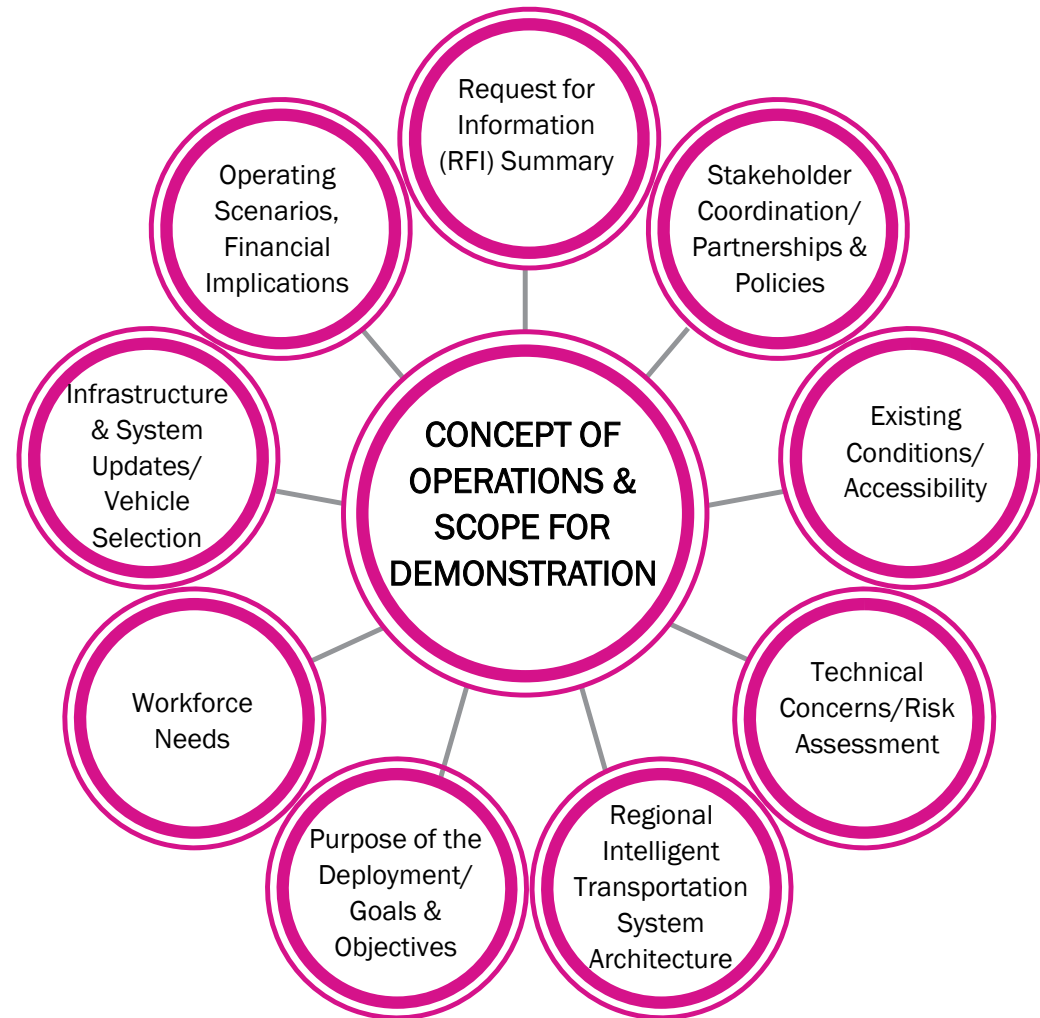
- Provide details on the anticipated scope and vision for longer term incorporation of AVs at LYNX
- Better understand how AVs would be required to operate to meet the needs of LYNX and its customers
- Help LYNX and its partners understand physical and data infrastructure currently available and any anticipated gaps

**Any future demonstration will be subject to funding identification and availability**

## Project Structure

Various memos folded into eventual Concept of Operations and Scope for Demonstration documents

Stakeholder coordination, update meetings, and deliverable review were conducted throughout



## User Survey Results – AV Opportunities and Barriers

### Opportunities

*In order of selection frequency*

1. More flexible transit
2. Better mobility for people who can't drive
3. Lower environmental impact
4. More efficient transit
5. Less congestion

### Barriers

*In order of selection frequency*

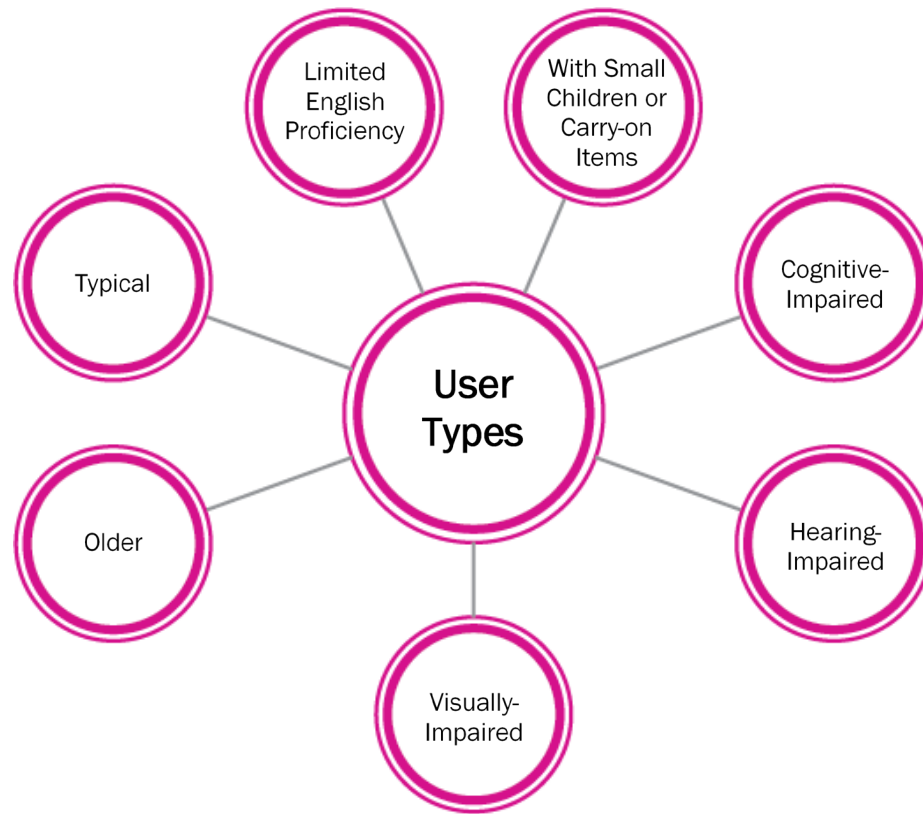
1. Driver assistance getting in and out of the vehicle
2. Security
3. Wayfinding
4. Driver assistance getting secure on the vehicle
5. Untested technology



## User Survey Results – Applicable Types of Service

- 90% of respondents thought that LYMMO would be the best fit for service by automated vehicles
  - *Followed by Disney Direct at 50% and NeighborLink at 40%*
- 60% thought that ACCESS LYNX would never be a good fit for service by automated vehicles
  - *No other responses had over 20%*
- 70% responded that they agreed with the statement "Overall, the use of automated vehicles in public transportation will help people like me."

# User Types



## Operating Options

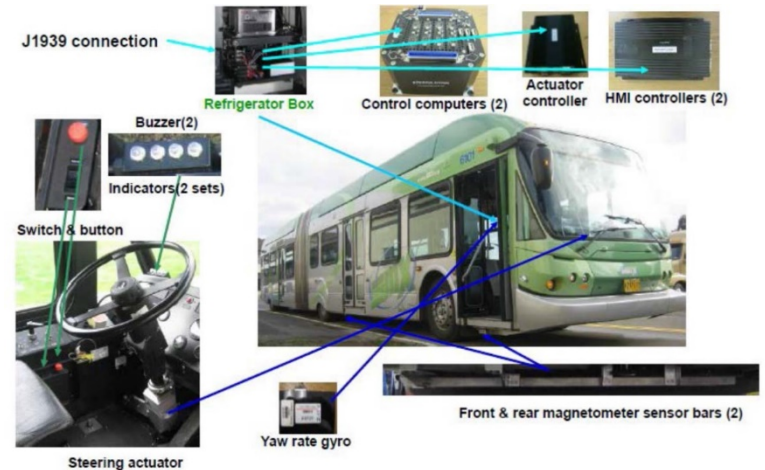
### Small AV Shuttle

- Technology available
- Operational issues
  - *Charging, maintenance, speed differential with other vehicles, limited capacity*



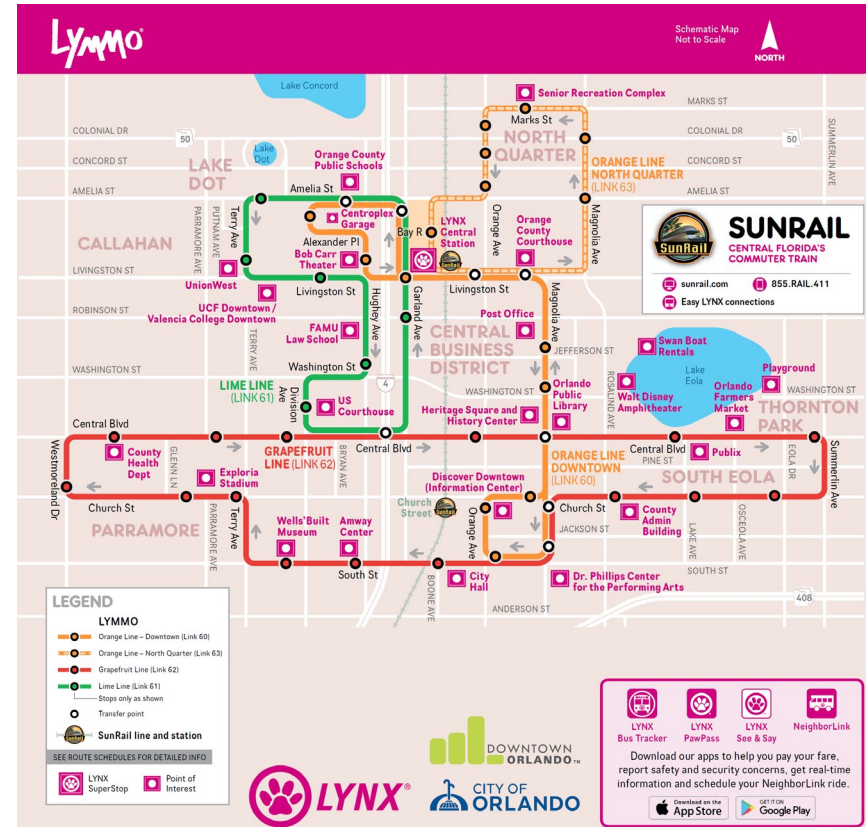
### Retrofitted Existing Vehicle

- Technology a few years away
- Fewer operational issues
- Lower lifecycle costs



# Potential AV Pilot Project – LYMMO Orange Line

- Exclusive lanes
- Limited interactions with other traffic
- Transit signal priority at signalized intersections
- Nearby charging infrastructure



# Comparison of AV Pilot Costs

LYNX AV Services

AV Pilot Option	Current LYMMO Orange Line Annual Operating Costs	One-Year AV Pilot Operating Cost	Total LYMMO Orange Line Operating Cost for One-Year Pilot Period	% Increase
1. Interspersing 3 shuttles	\$1,666,327	\$ 1,291,408	\$ 2,957,735	78%
2. Adding 1 shuttle		\$ 543,942	\$ 2,210,269	33%
Adding 3 shuttles		\$ 1,631,827	\$ 3,298,154	98%
3. Retrofitting 1 bus		\$ 756,900	\$ 2,423,227	45%

A pilot retrofitting one 35-foot bus with AV features would result in relatively low deployment cost from an operations perspective and limited operational impacts to other LYMMO buses, while maintaining passenger capacity



## Potential AV Pilot Benefits

- Engagement and education
- Testing and evaluation
- Increased safety and efficiency
- Economic development opportunities
- Lower operating costs

LYNX's goal is to provide transit services – AVs could make sense if they provide the same or better service to all passengers than other alternatives

## Potential Broader Application

- In the future, AVs could be integrated into the LYNX fleet for different services, pending the level of AV development over time
- This includes:
  - *Circulators*
  - *NeighborLink*
  - *Line haul services*

## Potential Funding Sources

### Federal

- **Federal Grants.** Consider applying for several federal discretionary grant opportunities, including the USDOT BUILD, FTA Integrated Mobility Innovation (IMI), and Accelerating Innovation Mobility (AIM) grant programs
- **Federal Formula Funds.** Consider pursuing federal flex funds such as Congestion Mitigation and Air Quality (CMAQ), Surface Transportation (STP), Transportation Management Area (TMA), and Transportation Alternatives funds through MetroPlan Orlando
- **Emerging Federal Opportunities.** Monitor potential new or retooled programs that could arise from a new infrastructure package currently being advanced by Congress or through the surface transportation reauthorization bill in 2021

### State

- **FDOT Partnership.** Consider securing a partnership with FDOT for use of state funds for the AV pilot, to match federal grants, and/or to use toll revenue credits to meet federal share requirements

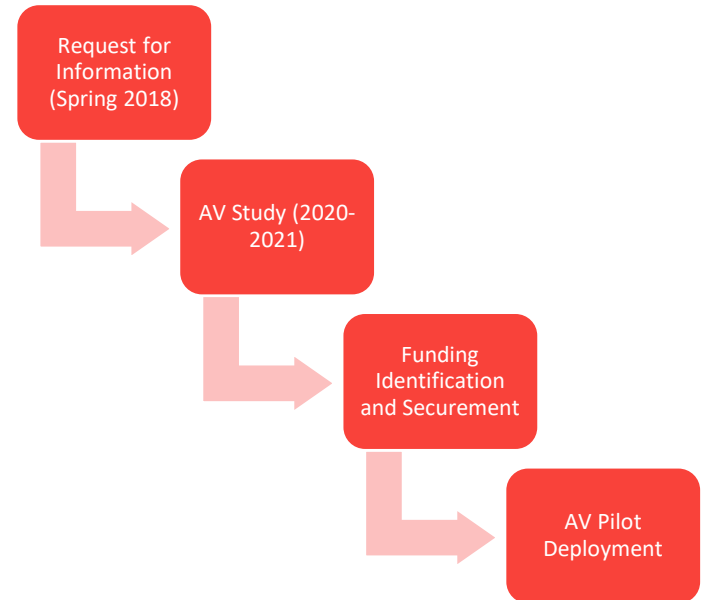
### Project-Specific

- **Private Involvement.** Identify opportunities to involve the private sector in contributing land, vehicles, or cash to support an AV pilot project



## Conclusions and Next Steps

- Future AV direction at LYNX will need to involve funding partnerships
  - *LYNX provides the services requested by funding partners*
- Development and release of a pilot RFP will be subject to:
  - *Identification and availability of dedicated funding*
  - *AV technology advancements*



Thank you!

Any questions?



# Appendix



## Financial Analysis – AV Funding Case Studies

Project	Federal	State	Local	Project-Specific
<i>Ultimate Urban Circulator – Jacksonville, FL</i>	28%	30%	42%	
<i>AVA – Pinellas County, FL</i>		72%	28%	
<i>HART Smart Mobility Alongside Regional Transit AV – Tampa, FL</i>		100%		
<i>Gainesville Regional Transit System AV – Gainesville, FL</i>		100%		
<i>Move Nona – Orange County, FL</i>	47%			53%
<i>Automated Buses on CTfastrak Corridor – Hartford, CT</i>	76%	19%		5%
<i>Relay Shuttle – Fairfax, VA</i>		31%	8%	62%
<i>Linden LEAP – Columbus, OH</i>	100%			
<i>GoMed – Las Vegas, NV</i>	72%		28%	

- Some federal grant opportunities exist, but most require local match
  - *Future federal grant opportunities with potential for higher federal matches may arise from anticipated federal stimulus package and/or surface transportation reauthorization in 2021*
- There is some state precedent for FDOT to fully fund a local AV pilot
- Significant local match is likely required for full deployment
- Some potential to secure in-kind contributions from private partners (vehicles, land, and/or cash)



# Funding Opportunities for an AV Pilot Project

Federal	State	Local	Project-Specific
<p>Competitive Federal Grants (USDOT, FTA)</p>	<p>Existing State Transit Programs (FDOT)</p>	<p>Limited to no funds available</p>	<p>Value Capture Tools</p>
<p>Federal Formula Funds (MetroPlan Orlando)</p>			<p>Private Involvement Opportunities (various project stakeholders)</p>
<ul style="list-style-type: none"> <li>▪ Federal COVID-19 Relief Funds</li> <li>▪ Future Federal Infrastructure Funding</li> <li>▪ Community Project Funding (“earmarks”)</li> <li>▪ <b>USDOT BUILD Grants</b></li> <li>▪ USDOT ITS4US Complete Trip Grants</li> <li>▪ <b>FTA IMI Grants</b></li> <li>▪ FTA AIM Grants</li> <li>▪ FTA Bus and Bus Facility Grants</li> <li>▪ <b>FTA Low-No Bus Grants</b></li> <li>▪ <b>FTA Formula Funds</b></li> <li>▪ FHWA CMAQ Funds</li> <li>▪ FHWA STP Funds</li> <li>▪ FHWA TMA Funds</li> <li>▪ FHWA Transportation Alternatives Funds</li> <li>▪ Federal Volkswagen Settlement Funds</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Transit Service Demonstration Pilot Program</b></li> <li>▪ Public Transit Block Grant Program</li> <li>▪ <b>Commuter Assistance Program</b></li> <li>▪ Toll Revenue Credits</li> <li>▪ Transportation Regional Incentive Program (TRIP)</li> </ul>	<ul style="list-style-type: none"> <li>▪ City of Orlando</li> <li>▪ LYNX</li> <li>▪ Other City or County Contributions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tax Increment Financing (TIF)</li> <li>▪ Special Assessment</li> <li>▪ <b>Naming Rights and Sponsorships</b></li> <li>▪ <b>Land Donations</b></li> <li>▪ <b>Private/Developer Contributions</b></li> <li>▪ Fare Revenues or Other Agency Revenues</li> <li>▪ Partnering with Existing Demonstration Pilots</li> </ul>

Note: Funding sources used for the nine AV funding case studies are shown in **bold**.



## Infrastructure Considerations

This table summarizes the cost of the improvements needed to move forward with a pilot project along the Orange Line:

Total Cost of Intersection Improvements	\$ 254,800.00
Network Improvements (15% of Total Cost of Intersection Improvements)	\$ 38,220.00
Subtotal	<b>\$ 293,020.00</b>
Contingency (15% of Subtotal)	\$ 43,953.00
Maintenance of Traffic (10% of Subtotal)	\$ 29,302.00
Construction Total	<b>\$ 366,275.00</b>
CEI (10% of Construction Total)	\$ 36,628.00
PE (15% of Construction Total)	\$ 54,941.00
Total Cost	<b>\$ 457,844.00</b>

The cost of a pilot project is also highly dependent on the operational characteristics of the selected AV vendor or service provider. Based on the selected AV's operational characteristics, the estimate may require further refinement.

# Thanks for joining us!

