



Transit Planning Tools to Support the Metropolitan Transportation Plan

Jorge Luna, HDR

Kevin Walsh, HDR

Agenda

- MPO Basics
- Planning Needs
- Short- to Long-Range Planning
- Transit Planning Resources
- Performance Monitoring



MPO Basics

- Policy-making and planning body
- Required in Urbanized Areas
 - Small UZAs
 - Large UZAs
- Updated with decennial census
- Agglomeration
- Designated recipient of federal funds
- Continuous, Comprehensive, Cooperative
- Variety of organizational arrangements
 - Hosted
 - Stand-alone
 - Existing agency designation
- Diminished spending flexibility



Metropolitan Planning Organizations

- Allocating scarce resources
- Inform and make decision about how to invest federal funds in regional transportation systems
- Evaluated both existing and future conditions
- Core of MPO
 - Long-Range Transportation Plan
 - Transportation Improvement program
 - Unified Planning Work Program
 - Travel Demand Model





Transportation Improvement Program



- TIP identifies transportation projects and strategies that MPOs and the State plan to undertake over the next 3-5 years.
- All projects receiving federal funding must be in the TIP.
- The TIP is the region's way of allocating its transportation resources among the various capital and operating needs of the area, based on a clear set of short-term transportation priorities.
- The TIP:
 - Updated at least every two years;
 - Fiscal constrained;
 - Conforms with State Implementation Plan (SIP) for air quality;
 - Approved by the MPO Board and State governor; and
 - Incorporated into the State Transportation Improvement Program
 - Example: [program of projects](#)



MPO Limitations

- Not an implementation agency
- Does not control land use
- Lack authority on imposing taxes (some exceptions)
- Internal resources availability and required work
- Requires coordination with those that implement improvements
- However, leverage comes in form of designating federal funding project support
 - Top down; bottom-up; and internal support



Short- to Long Range Planning

Long Range Plan

Capital

5-25 yrs.

Short Range Plan

3-5 yrs.

System
tuning

Budget Plan

Annual

Daily operations

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MPO – RTP Development

- Planning requirements:
 - Public involvement, travel demand forecasting, air quality conforming analysis, performance measure and TIP development/programming
- Visioning
- Conditions assessment – problems and opportunities
- Travel demand forecasting
- Goals and objectives
- Plan of action
- Air quality conformity analysis
- Fiscally constrained plan (can include illustrative projects)
 - [Example](#)



Sample RTP



Finalize and adopt the plan based on the extensive analysis and stakeholder feedback garnered throughout the process.

The transportation projects included in the 2015-2040 Regional Transportation Plan (RTP) are planned to meet the travel needs and improve the quality of life within the Wasatch Front region for the next 30 years. The Wasatch Front Regional Council (WFRC) developed project lists with residents, local government stakeholders, and partner agencies by collecting project ideas and testing them against the RTP goals. To be implemented, the region will need both existing and additional transportation revenues. For additional information regarding the revenues, visit the ["Select Projects and Phase"](#) page.

In addition to regional road, transit, and bicycle improvements, the 2015-2040 RTP also recommends general policy for transportation systems, enhancements, regional freight movement, safety, preservation and maintenance, and homeland security. The RTP conforms to federal air quality standards, meaning that the vehicle emissions estimated for the year 2040 are within the limits identified in the State Implementation Plan (SIP).

The interactive map contains all of the roadway, transit, and bike projects proposed for the 2015-2040 RTP. Users can view the project



Transit Projects

Project Number	Project Name	Segment	Annual Operational Cost (\$M)(Cost figures are based on the mode of the segment)	Operational Cost through 2040 (\$M)(Cost figures are based on the mode of the segment)	Needs Phase	Needs Mode	Capital Cost of Needs (\$M)(Cost figures are based on the mode of the segment)	Annual Operational Cost (\$M)(Cost figures are based on the mode of the segment)
45A-45B	Cottonwood Kearns Corridor	Big Cottonwood Canyon Park and Ride to Fort Union Transit Center	\$2.8	\$18.9	3	Bus Rapid Transit	\$131	\$2.8
		Fort Union Transit Center to 900 E/Fort Union Blvd.			2	Bus Rapid Transit		
		900 E/Fort Union Blvd. To State Street/Fort Union Blvd.			3	Bus Rapid Transit		
		State Street/Fort Union Blvd. To Red Line (Bingham Junction) TRAX Station			2	Bus Rapid Transit		
		Red Line (Bingham Junction) TRAX Station to 7000 S/Redwood Road	Unfunded	Unfunded	2	Enhanced Bus	\$46	\$2.2
		7000 S/Redwood Road to Bennion Blvd./Redwood Road			2	Bus Rapid Transit		
		Bennion Blvd./Redwood Road to Bennion Blvd./5600 W			3	Enhanced Bus		
46	East Sandy Daybreak Corridor	Little Cottonwood Canyon to 9400 S/State Street	Unfunded	Unfunded	3	Enhanced Bus	\$55	\$5.9
		9400 S/State Street to Sandy Civic Center TRAX Station			3	Enhanced Bus		
		Sandy Civic Center TRAX Station to South Jordan FrontRunner Station			3	Bus Rapid Transit		
		South Jordan FrontRunner Station to South Jordan Parkway TRAX Station			2	Enhanced Bus		
		South Jordan Parkway TRAX Station to Bacchus Highway (UT-111)			3	Enhanced Bus		
47A-47B	Draper Town Center - Riverton Corridor	Draper Town Center TRAX Station to 12300 S/Lone Peak Parkway	Unfunded	Unfunded	2	Enhanced Bus	\$22	\$3.4
		12300 S/Lone Peak Parkway to PRI Property			2	Enhanced Bus		
48	Big Cottonwood Corridor	Mouth of Big Cottonwood Canyon to Brighton Ski Resort	Unfunded	Unfunded	3	Enhanced Bus	\$32	\$4.9
49	Little Cottonwood Corridor	Mouth of Little Cottonwood Canyon to Alta Ski Resort	Unfunded	Unfunded	3	Enhanced Bus	\$18	\$2.7
50	Alta - Summit Co. Connector	Alta Ski Resort to Brighton Ski Resort	Unfunded	Unfunded	N/A	N/A	N/A	N/A
		Brighton Ski Resort to Summit County Line	Unfunded	Unfunded	N/A	N/A	N/A	N/A

Short- to Long Range Planning



Long Range Plan

Capital

5-25 yrs.

Short Range Plan

3-5 yrs.

System
tuning

Budget Plan

Annual

Daily operations



Resources

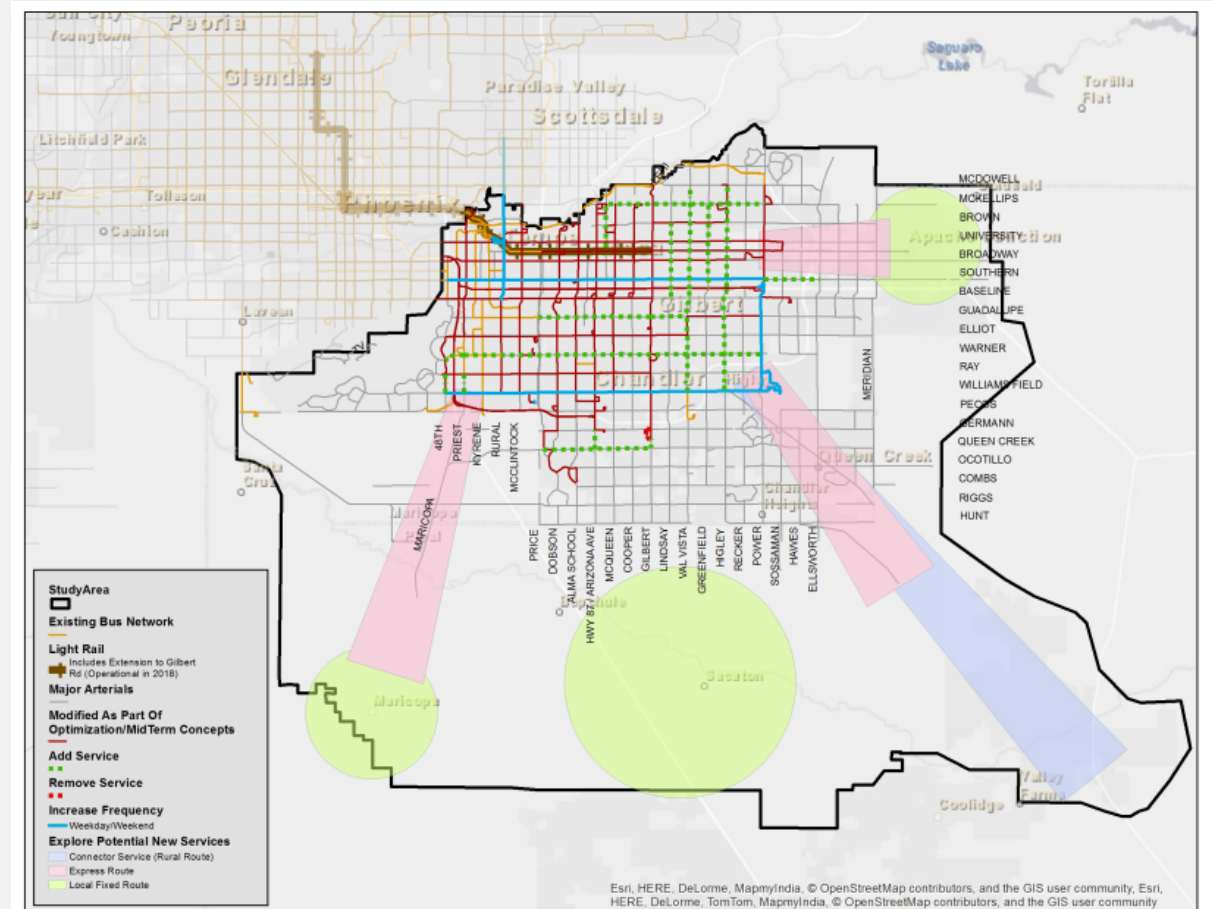
- Subregional transit studies
- Short Range Transit Programs
- Transit Service Inventory
- Local Transit Implementation Plans
- Comprehensive Operations Analysis
- Transit Standards and Performance Measures
- Performance Monitoring
- Others:
 - State of good repair
 - Transit asset management



Subregional transit studies

Southeast Valley Transit System Study

- Analyzed transit services and ridership demand in transit-established and transit-aspiring communities
- Study addressed local bus transit
- High capacity transit is not part of the analysis
- Identified
 - Short-, mid-, and long- term recommendations
 - Recommendations to be used to enhance and develop a performance-based transit system throughout the subregion
- Recommended concepts to be refined through other planning and programming processes such as the Short-Range Transit Plan

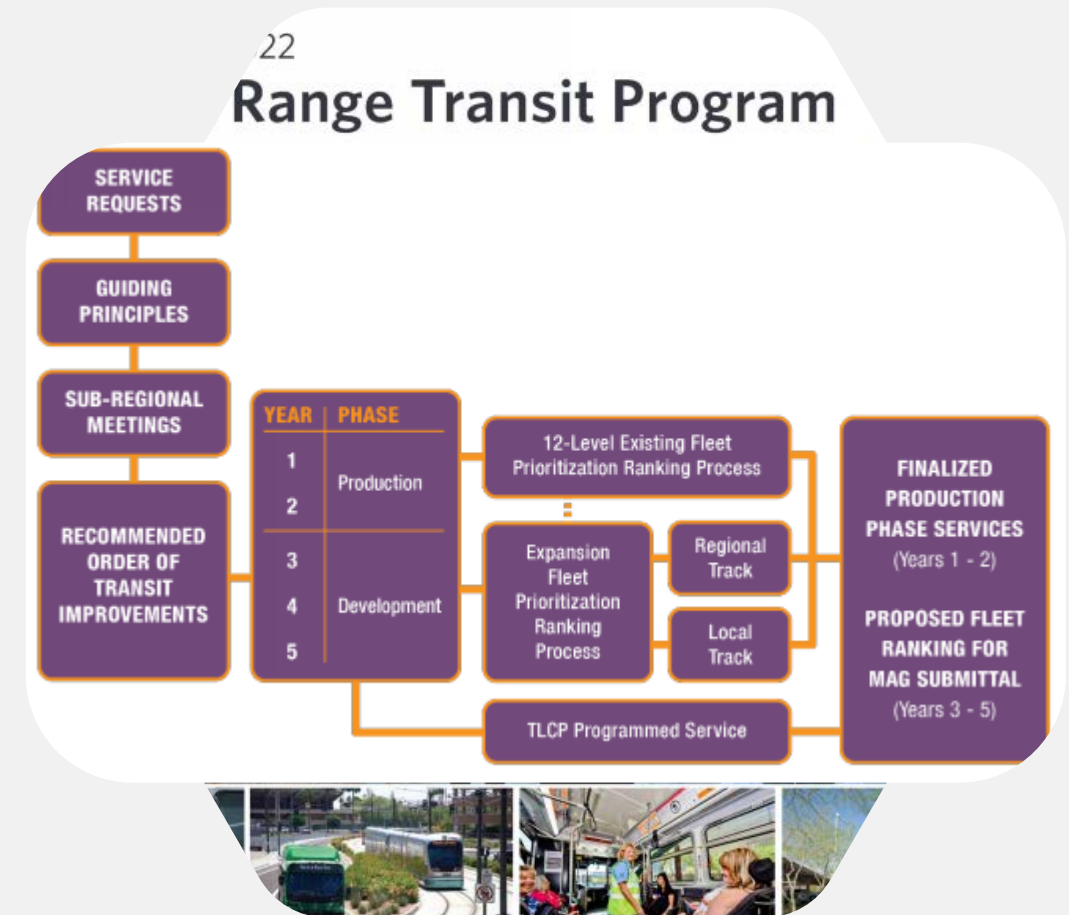


LONG-TERM RECOMMENDATIONS – Service to future growth areas

Short Range Transit Programs

Valley Metro SRTP

- Identifies transit service change concepts for the next five years
- SRTP builds upon previous and ongoing agency efforts
- Identifies regional and local fixed-route service change concepts regardless of funding source (e.g. regional or local)
- Developed through member agency input and Valley Metro staff
- Depended on Board-approved policies, e.g.:
 - Transit Standards and Performance Measures (TSPM)
 - Transit Life Cycle Program (transit portion of 20-year tax)
- SRTP informed
 - Transit Life Cycle Program
 - Fleet Management Plan
 - Bi-annual service changes
 - Transportation Improvement Program



Transit Service Inventory

- Provides an overview of the region's transit investments in capital and operations per local, regional and federal funds
- Developed to aid the MPO technical committee process in:
 - Project evaluation
 - Selection
 - Programming of federal transit funds in the near term
 - Long-range funding needs
 - TIP Development
 - Regional Transportation Plan (RTP) update
- Help support:
 - Interagency cooperation
 - Grant applications

Table 3 – Total Transit Investments (Millions) FY2013-2018

Funding Source	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	Total	% of Total
Local	\$271	\$268	\$246	\$266	\$314	\$279	\$1,643	53%
Regional	\$108	\$169	\$175	\$104	\$151	\$79	\$787	25%
Federal	\$224	\$119	\$124	\$93	\$68	\$49	\$678	22%
Total	\$603	\$555	\$544	\$463	\$534	\$408	\$3,107	53%

Table 4 - Total Transit Operations (Millions) FY2013-2018

Funding Source	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	Total	% of Total
Local	\$208	\$230	\$239	\$255	\$269	\$279	\$1,480	77%
Regional	\$52	\$55	\$62	\$64	\$65	\$67	\$365	19%
Federal	\$27	\$13	\$13	\$8	\$7	\$8	\$75	4%
Total	\$286	\$298	\$313	\$327	\$341	\$354	\$1,919	100%

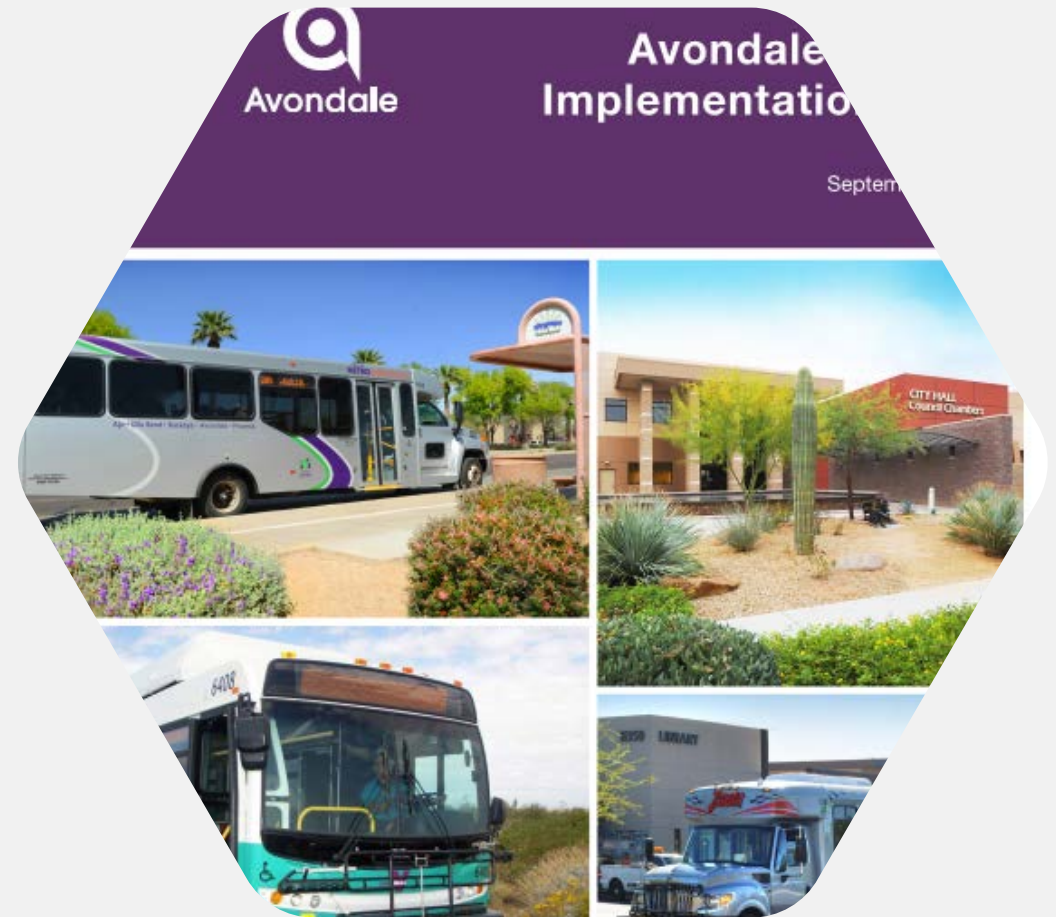
Table 5 - Total Transit Capital (Millions) FY2013-2018

Funding Source	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	Total	% of Total
Local	\$63	\$37	\$7	\$12	\$45	-	\$163	14%
Regional	\$56	\$114	\$113	\$40	\$86	\$12	\$422	36%
Federal	\$197	\$106	\$112	\$85	\$61	\$41	\$603	51%
Total	\$316	\$258	\$232	\$137	\$192	\$53	\$1,188	14%

Transit Implementation Plans

Avondale Transit Implementation Plan

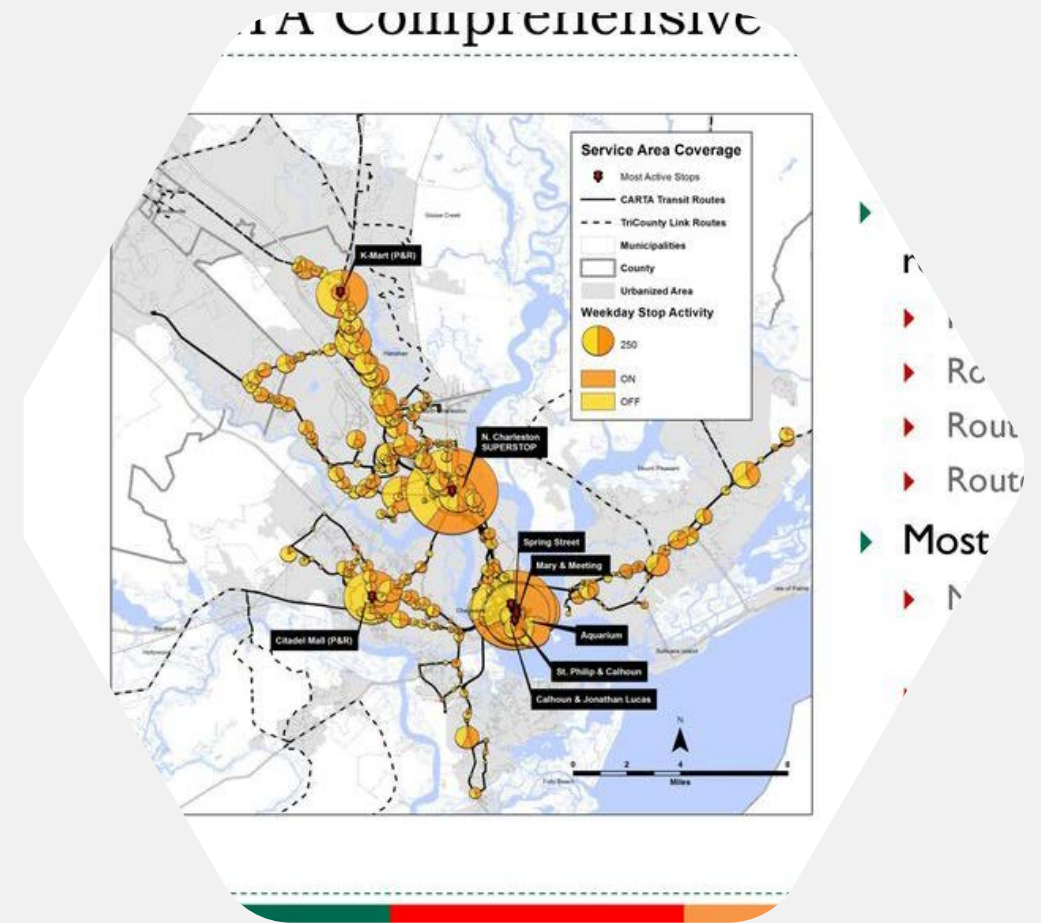
- Municipal transit plan to support the general plan
- Developed by regional transit authority
- Retained continuity with MPO subregional transit studies and RTP
- Helped guide municipal short- and mid-term investments in:
 - Service schedules
 - Operations costs
 - Capital costs
 - Capital requirements (e.g. fleet, stops, amenities)
 - Funding analysis and strategies
 - Financial plan



Comprehensive Operations Analysis

CARTA COA

- Improve transit operations efficiencies
- Identify alternative services
- Improve service to existing customers
- Attract new riders
- Evaluate existing services
- Short-term recommendations





Transit Standards & Performance Measures

Assist in developing a performance-based public transportation system consistent with federal, state, regional and local requirements



Base

- Service provision goals
- Service types
- Service standards
- Stop spacing
- Performance measures

Performance

- Planning tools
- Performance thresholds
- Application principles
- Standards for implementing new transit services

Design

- Service design standards
- Regional fleet prioritization process
- Service planning integration



Performance Monitoring



FTA

FEDERAL TRANSIT ADMINISTRATION

MAP-21

Moving Ahead for Progress in the 21st Century

Transforming the Way we Build, Manage, and Maintain our Nation's Transit Systems

FAST ACT

THE FIXING AMERICA'S SURFACE TRANSPORTATION ACT

Why Monitor?

Customer Expectations

- Safe, reliable, punctual service

Locally Adopted

- General Funds / Dedicated Funding

Regional

- MPO Long Range Transportation Plan

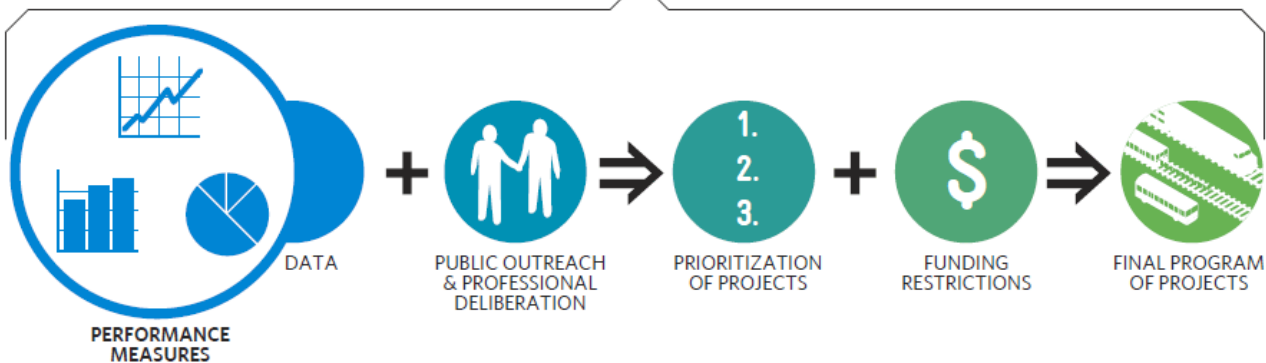
State

- Office of Transit Planning / STIP

Federal

- MAP-21 / FAST ACT

PERFORMANCE-BASED FUNDING



Note: This image illustrates that performance measures are a form of data, and just one component of a larger performance-based funding process.
Source: Chicago Metropolitan Agency for Planning.

Transit Modes and Options



Commuter Rail



Light Rail



Bus Rapid Transit



Commuter Express



Streetcar



Local Bus



Shuttles/Circulators



Regional Transit



ADA Paratransit



Vanpool



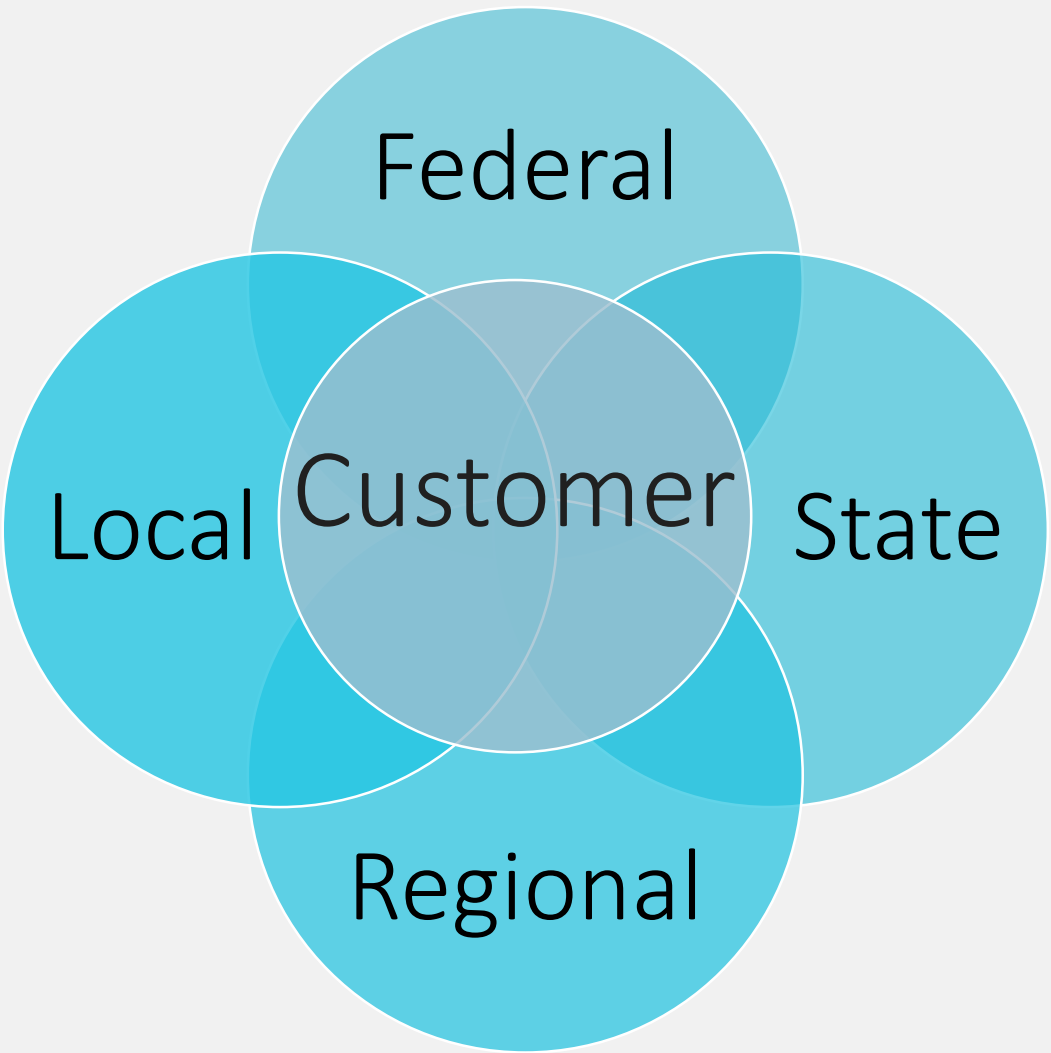
Carpooling



Emerging



Why Monitor?





Why Monitor?

- Agency's health
- Customer expectations
- Community goals
- Changes in markets
 - Transportation Network Companies (Uber, Lyft)
 - Millenials and Aging In Place
 - Recent Ridership Fluctuations
- Planning for the future





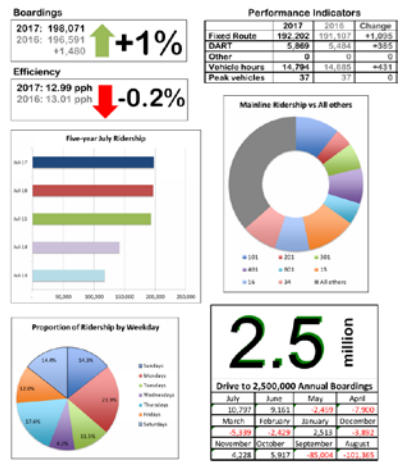
Why Monitor?

- Transparency
 - Public
 - Boards and Commissions
 - Meeting established goals
 - Funding partners
- Public buy-in
- Peer evaluation



Sample Reporting Sites

July 2017 Ridership Dashboard



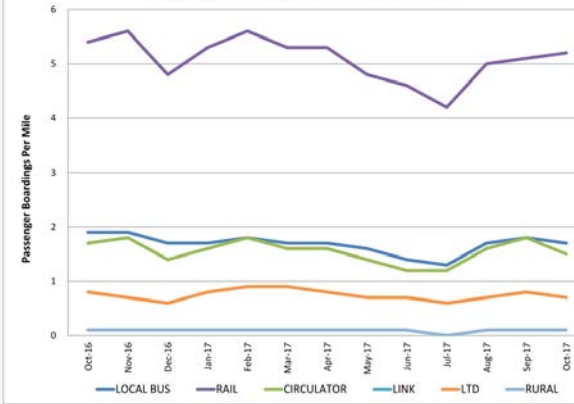
COMET

Key Performance Indicators - Fixed Route

Fixed Route Metrics	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	12 Month Total
Revenue Hours	37,881	38,828	36,776	35,836	35,836	35,836	35,836	35,836	35,836	35,836	35,836	35,836	35,836	424,276
Revenue Miles	3,031	3,176	2,971	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	43,979
Revenue Miles per Passenger	3,265	3,418	3,241	3,168	3,241	3,241	3,241	3,241	3,241	3,241	3,241	3,241	3,241	40,836
Revenue Miles per Mile	85,240	85,400	79,238	79,297	80,880	80,880	80,880	80,880	80,880	80,880	80,880	80,880	80,880	922,634
Costs	74,124	76,679	73,928	68,974	67,723	67,723	67,723	67,723	67,723	67,723	67,723	67,723	67,723	884,861
Accidents	2	0	1	0	2	2	0	1	1	0	0	0	0	11
Breakdowns	5	2	6	5	0	0	5	5	4	3	2	1	0	50
Complaints	2	1	3	1	2	0	2	1	2	0	4	1	2	27
Travel Expenses	\$116,481	\$184,322	\$173,084	\$216,482	\$225,143	\$201,248	\$179,869	\$176,130	\$212,744	\$233,496	\$201,244	\$189,716	\$223,756	\$2,515,472
Administrative Expenses	\$76,800	\$87,706	\$82,867	\$103,086	\$100,782	\$105,501	\$110,811	\$112,653	\$81,873	\$114,064	\$112,117	\$79,041	\$82,442	\$1,289,812
Operating Expenses	\$193,281	\$272,028	\$255,951	\$319,568	\$325,925	\$306,749	\$290,680	\$288,783	\$296,613	\$328,160	\$283,261	\$268,757	\$316,198	\$3,805,284
Cost per Mile	\$133.61	\$133.91	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61	\$133.61

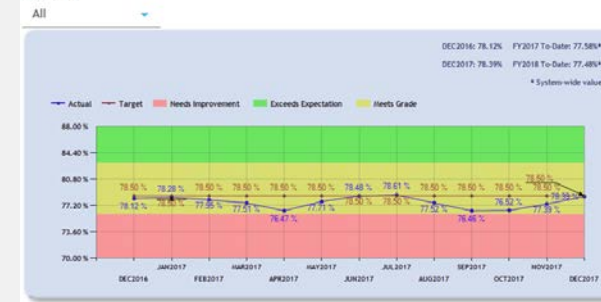
COAST RTA

Weekday Productivity by Month and Mode



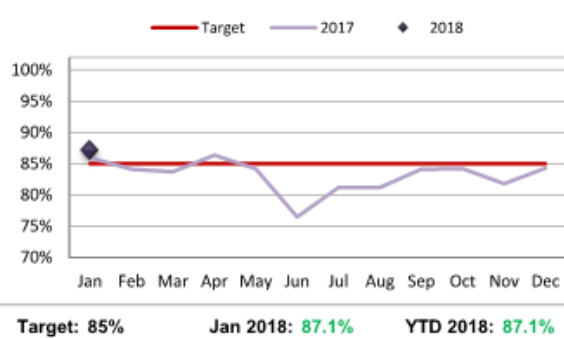
Valley Metro

Bus Route:



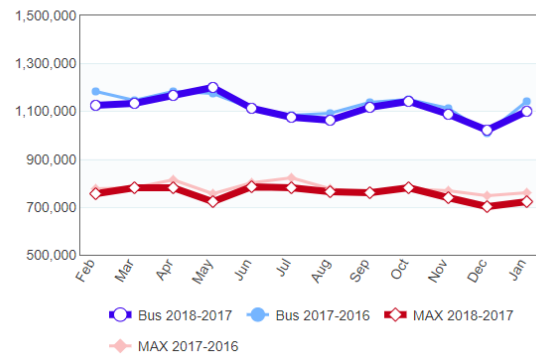
MARTA

On-Time Performance



Sound Transit

Weekly Boarding Rides Bus and MAX



Trimet

Efficiency in the Past 5 Years



Gulf Coast Center

On-Time Performance Report

Service Type	January-18	January-17	% Change
Bus	91.86%	87.78%	4.65%
TRAX	93.95%	94.43%	-0.51%
Streetcar	99.14%	99.13%	0.01%
FrontRunner	93.02%	84.75%	9.76%
Vanpool *			
Mobility Management **			
Route Deviation	95.97%	94.41%	1.65%
Paratransit	96.39%	96.27%	0.12%
Total UTA System **	95.06%	92.80%	2.44%

* Vanpools are operated by vanpool participants and on-time performance is not recorded.
** Mobility Management is operated by community stakeholders and on-time performance is not recorded.

UTA



Performance Categories Considerations

- Accessibility
- Service Availability
- Cost Efficiency
- Service Quality
- Asset & Maintenance
- Public Measures
- Environmental
- Safety & Security





Sample Measures



- Annual Ridership
- Op. Expenses
- Service Area
- Population
- Veh. Rev. Mi.
- Veh. Rev. Hr.
- Farebox recovery
- Avg. Fleet Age
- Passenger/Mi.
- Passenger/Hr.

- On-Time Performance
- Missed Trips
- Veh. Mi. Btw. Road Calls
- Veh. Mi. Btw. Safety Incidents
- PM Inspections Completed
- Subsidy/Passenger
- Cost/ Veh. Hr.
- Cost/ Veh. Mi.

- Passenger Commendations
- Percent No-Shows
- Service Per Capita
- Cost/Trip
- Stops with Shelters
- No. of Connecting Routes
- Boardings/Stop
- Peak Load Factor
- Level of Service

- Passenger Complaints



Types of Data/Sources and Applications



Farebox – Boardings / Fare Type



Automatic Passenger Counter – Vehicle Load

16 INBOUND

Center:	Sandy Island	Inlet Square	79
Street	Landing	Mall	
	177	175	
	④	③	
AM	6:36 AM	7:02 AM	7:
AM	10:21 AM	10:47 AM	
PM	1:51 PM	2:17 PM	

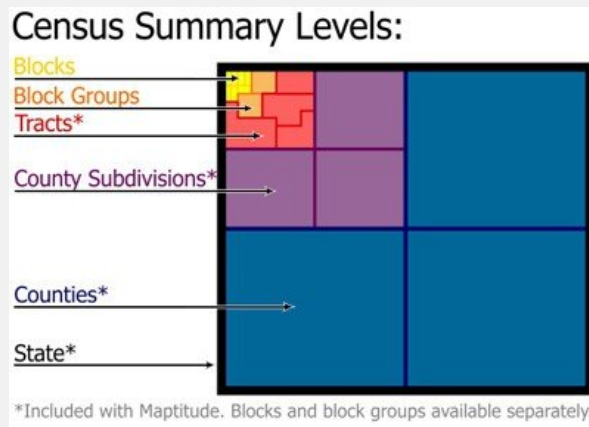
Schedules – Missed Trips / Miles Traveled



Vehicle Locator – On-Time Performance



Operator Tallies – Ridership / Trip Load



Census – Service Per Capita



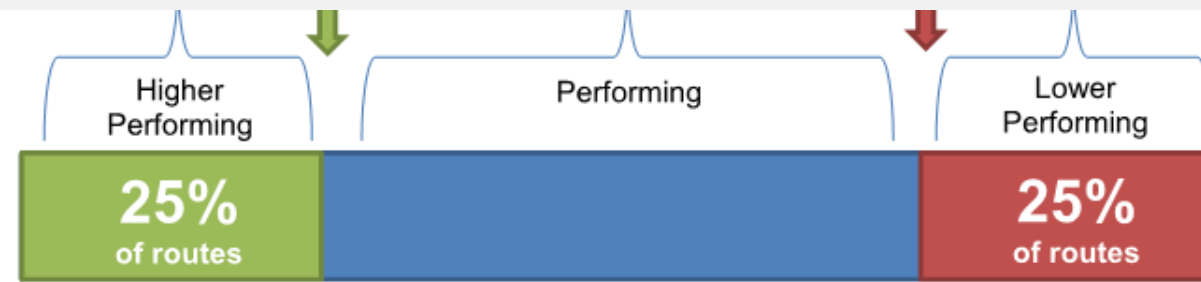
Park-and-Ride – Lot Utilization / Market Analysis



Capital – Fleet Age / Mechanical Failures / Bike Locker

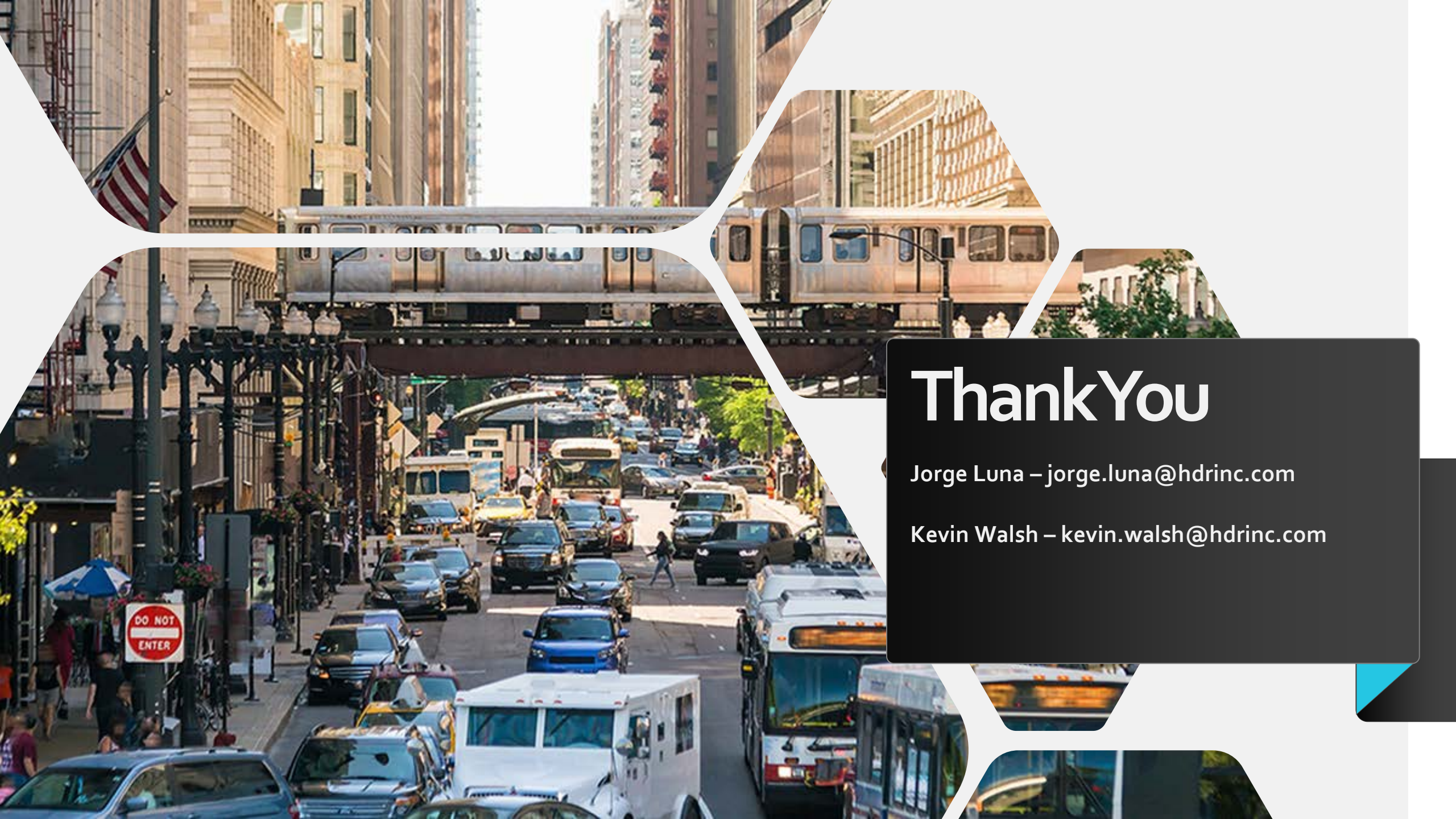
Developing Your Measures

- Have you developed your goals and objectives?
 - Do you have service types and standards?
 - Do you have the right data sources?
 - Have you garnered management support?
 - Who are your stakeholders?
 - Which measures are right for you right now?
 - How will you develop consensus?
 - Will you test the new program?
 - How will you report?
 - How will results be integrated into the decision-making process?
- Consider
 - Regional goals
 - Target based
 - Trigger based
 - Present day planning
 - Future based planning



The image is a collage of city street scenes. In the top left, there's a view of a city street with a building under construction, featuring scaffolding and an American flag. Below that is a close-up of ornate street lamps. In the bottom left, a white armored truck is visible. The bottom right shows a busy street with several white buses, cars, and a pedestrian. The word "Questions?" is centered in a dark grey box.

Questions?



Thank You

Jorge Luna – jorge.luna@hdrinc.com

Kevin Walsh – kevin.walsh@hdrinc.com