TWENTY-EIGHT BY '28 PROGRAM
FINANCING/FUNDING PLAN
WHITE PAPER

Challenge Statement

Design a funding/financing plan for $26.2 billion, which represents the funding gap for the environmental, design, construction, operating, and maintenance costs of the "Twenty-Eight by '28 Initiative" projects listed that are currently outside of the 2028 scheduled completion date.

Introduction/Background

The Twenty-Eight by '28 Program Initiative highlights 28 projects for $42.9 billion (YOE) with the goal of completion by the 2028 Olympic and Paralympic Games. The initiative articulates a vision for what Metro seeks to achieve by 2028, which facilitates obtaining needed support from Metro's many partners in delivering a transformative transportation investment program for Los Angeles County by the commencement of the 2028 Games.

When the Metro Board approved the list in January 2018, 20 of the projects on the list were already slated for completion by 2028, and the remaining eight projects listed were planned for completion post 2028. In order to accelerate their delivery *by 2028*, staff needs to design a funding/financing plan to advance $26.2 billion, which represents the funding gap for the environmental, design, construction, operating, and maintenance costs for the eight projects. All eight of these projects are also listed in the Measure M Expenditure Plan and as such, any acceleration is subject to the Ordinance and related policies.

	Funding Gap Summary	Amount in Billions (YOE)
1	Total Project Cost for Twenty-Eight by '28	$ 42.9
2	(Less) 20 Projects Already Scheduled for Completion by 2028	(19.2)
3	**Remaining 8 Project Construction Cost to be Advanced**	**23.7**
4		
5	Operations & Maintenance Expense for Earlier Revenue Operations	2.2
6	Pre Revenue Service Cost	0.1
7	State of Good Repair	0.2
8	**Sub-total Non Construction Cost to Advance the 8 Remaining Projects**	**2.5**
9		
10	**Total Planned Funding Gap to Advance 28 by 2028**	**$ 26.2**

Objective of the White Paper

Per Motion 4.1 (Solis, Garcetti, Hahn, and Butts) "28 by 2028 Transportation Investments", as staff endeavors to put forth a funding/financing plan, it is important to understand the Measure M parameters in which we currently operate. Because Metro's current budget is committed within its policy constraints and projected expenditures, any such plan must be of an acceptable level of increased risk and/or impact to the agency's planned activities and investments. This White Paper will focus on the following five key areas:

1. Delivery Status of Twenty-Eight by '28

- Review of the Measure M & Twenty-Eight by '28 Project Delivery Status (The Dashboard)

2. Measure M Parameters

- Key Voter-Approved Measure M Ordinance Parameters re: Acceleration
- Board-Approved Policy for an Early Project Delivery Strategy: Approved in November 2017, this policy outlines how projects would/could be accelerated in the Measure M Plan
- Board-approved Measure R and Measure M Cost Management Policy

3. Twenty-Eight by '28 Funding Gap Challenges

- Staff-recommended Protected Programs & Projects: (If allowed, staff will work under these critical baseline assumptions).
- Funding Plan Status for the 20 Projects Scheduled for Completion by 2028

4. Potential Funding/Financing Tools to Address the Funding Gap

- Potential Strategies to Close the $26.2 Billion Funding Gap
  - Risk Allocation Matrix (RAM) Items: Identification and review of the RAM items that the Board, under its purview, could authorize to help reduce the funding gap
  - Debt Affordability Overview
  - Local Return & Multi-Year Sub-regional Program Funding Allocations
- Public Private Partnership (P3) Project Assumptions and Benefits
- State & Federal Funding Assumptions & Impacts/Potential to Yield Additional Awards
- New Revenue Primer: New Mobility Fees & Congestion Pricing

5. Call to Action

- Summary of initiatives that the Board can take to address the Twenty-Eight by '28 funding gap challenge

1. Delivery Status of Twenty-Eight by '28

At its January 2018 meeting, the Board approved the Twenty-Eight by '28 Initiative List to highlight projects for completion by the 2028 Olympic and Paralympic Games. Investments on the list total $42.9 billion (YOE) for capital costs and are distributed countywide, demonstrating proactive regional coordination:

Figure 1 Twenty-Eight by '28 Initiative List

($ in millions)	Total Cost
1. Crenshaw/LAX Line	$2,058.0
2. Microtransit†	$0.0
3. Regional Connector	$1,755.8
4. New Bus Rapid Transit Corridors (Phase 1)	$53.1
5. Orange and Red Lines to Gold Line Transit Connector (North Hollywood to Pasadena)	$317.9
6. Airport Metro Connector Station	$625.6
7. I-5 North Capacity Enhancements	$539.2
8. North San Fernando Valley	$205.6
9. Purple Line Extension Section 1	$2,778.9
10. Gold Line Foothill Extension to Claremont (with ability to extend to Montclair)	$1,406.9
11. LA River Waterway & System Bike Path	$433.2
12. LA River Bike Path and Mobility Hub – San Fernando Valley	$69.6
13. Orange Line Travel Time and Safety Improvements	$320.6
14. Purple Line Extension Section 2	$2,441.0
15. Purple Line Extension Section 3	$3,213.0
16. Sepulveda Pass ExpressLanes	$310.5
17. East San Fernando Valley	$1,563.0

($ in millions)	Total Cost
18. I-105 ExpressLanes*	$348.9
19. I-710 South Corridor Early Action (Ph1)*	$897.0
20. South Bay Light Rail Extension*	$1,167.3
21. Blue Line Signal and Washington/Flower Junction Improvements†°	$112.5
22. I-10 ExpressLanes I-605 to San Bernardino Line†	$500.0
23. SR-57/60 Interchange Improvements*	$1,087.5
24. Vermont Transit Corridor	$522.7
25. Sepulveda Transit Corridor*	$8,591.1
26. Gold Line Eastside Extension to Whittier or South El Monte*	$4,438.5
27. West Santa Ana Branch*‡	$6,311.9
28. I-405 South Bay Curve Improvements*	$883.1
TOTAL	**$42,952.2**
TOTAL, accelerated projects	**$23,725.2**

*** Accelerated project.**
† Non-Measure R or non-Measure M project.
° Project cost could be as much as $860 million.
‡ Comprised of FY28 and FY41 projects; only FY41 project is accelerated.
Based on non-accelerated project delivery schedules.

Project lifecycle has six key stages: planning, environmental, final design, construction, operations, and ongoing maintenance. Most of the 28 projects are also Measure M projects. (Metro staff is currently meeting or exceeding the Measure M Schedule.) All 28 projects listed on *Figure 1* are in project development:

- 7 (25%) are in the Planning stage (4, 5, 8, 11, 16, 24, 25)
- 8 (29%) are in the Environmental stage (12, 17, 18, 19, 20, 26, 27, 28)
- 7 (25%) are in the Final Design stage (2, 6, 7, 14, 15, 21, 23)
- 6 (21%) are in the Construction stage (1, 3, 9, 10, 13, 22)
- 0 (0%) are in the Operations & Maintenance stages

A complete list of the status of all 28 projects is provided in the Appendix as *Attachment A – The Dashboard*.

2. Measure M Parameters

All of the eight projects originally planned for completion post 2028 are Measure M projects. The capital cost estimate for the eight projects is $23.7 billion (YOE). As such, any funding acceleration is governed by the Measure M Ordinance.

Figure 2 Eight Projects with Schedules Post-2028

I-105 ExpressLanes	Sepulveda Transit Corridor
I-710 South (Early Action)	Gold Line Eastside Extension
SR57/60 Interchange	West Santa Ana Branch
I-405 South Bay Curve	South Bay Light Rail Extension

Key Voter-Approved Measure M Ordinance Parameters

As noted in the "Delivery Status of Twenty-Eight by '28" section above, these eight projects are in project development, despite their original delivery date of post 2028. A summary of available acceleration options for these projects is provided below:

- In order to accelerate funding for construction of a Measure M project, an amendment to the "Schedule of Funds Available" is required.

- Acceleration of funding for projects is allowed by 2/3 vote of the Metro Board only if it results in no funding reductions to other projects (Major or Multi-year Sub-regional Programs (MSP)), per Ordinance §11.b.

- Metro shall hold a public meeting on the proposed amendments to the "Schedule of Funds Available" prior to adoption. Metro is required to provide notice of the public meeting to the Los Angeles County Board of Supervisors, the city council of each city in Los Angeles County, and the public, and shall provide them with a copy of the proposed amendments at least 30 days prior to the public meeting.

  **Note: Some of these projects are also Measure R Projects. The Measure R Ordinance allows for amendments with a 2/3 vote of the Metro Board. The noticing requirements are the same as above.*

Role of the Independent Taxpayer Oversight Committee (ITOC)

It should also be noted that prior to a vote by the Metro Board, any proposal to accelerate a Measure M project must also be reviewed by the Measure M ITOC. Specifically:

- The Committee shall review all proposed debt financing and *make a finding* as to whether the benefits of the proposed financing for accelerating project delivery, avoiding future cost escalation, and related factors exceed issuance and interest costs.

- The Committee shall review any proposed amendments to the Ordinance, including the Expenditure Plan, and *make a finding* as to whether the proposed amendments further the purpose of the Ordinance.

- For major corridor projects, included in the Expenditure Plan, the Committee shall review at least once a year…the funding available and programmed for the projects included in the Expenditure Plan, as well as any funding gaps for each of these projects. The Committee shall provide recommendations on possible improvements and modifications to deliver the Plan.

Measure M Early Project Delivery Strategy

At its November 2017 meeting, the Board approved a uniform policy for determining when Measure M projects can be delivered earlier than scheduled in compliance with the Ordinance. The policy identifies four categories of strategic inputs for early project delivery – Funding, Partnerships, Process, and Innovations – as these are the areas most impactful in driving how projects are completed. In general, multiple acceleration inputs are typically needed to result in accelerating a project schedule. A project's funding, schedule, scope, or legal/regulatory environment are integral to the acceleration inputs. The complete Measure M Early Project Delivery Strategy is provided in *Attachment B – The Policy for Early Project Delivery*.

The cities of West Hollywood and Los Angeles are currently using the Early Project Delivery Tool to address acceleration efforts for the Crenshaw Northern Extension & LA Streetcar Measure M Projects. It is worth noting that these projects are not on the Twenty-Eight by '28 list – the Early Project Delivery evaluation is available to *any* project in the Measure M approved expenditure plan.

Measure R and Measure M Cost Management Policy

Approved by the Metro Board in July 2018, the objective of the Policy is to ensure the prompt development and consideration of project cost alternatives that genuinely address the cost controls necessary to successfully deliver all Measure R and M transit and highway projects. As such, this Policy will apply to the Twenty-Eight by '28 Initiative.

If increases in the latest cost estimate occur, the Metro Board must approve a plan of action to address the issue prior to taking any action necessary to permit the project to move to the next milestone. Shortfalls will first be addressed at the project level prior to evaluation for any additional resources using these methods in this order as appropriate:

1) Scope Reductions;
2) New Local Agency Funding Resources;
3) Value Engineering;
4) Other Cost Reductions within the Same Transit or Highway Corridor;
5) Other Cost Reductions within the Same Sub-region; and
6) Countywide Transit or Highway Cost Reductions or Other Funds Will Be Sought Using Pre-Established Priorities.

The Policy also states that no project will receive Measure M funds over and above the amount listed in the Expenditure Plan, except under the following circumstances:

- The cost is related to inflationary pressures, and meets the requirements for the Inflation related Contingency Fund provisions provided under the Measure M Ordinance. These are addressed in the Measure M Contingency Fund Guidelines Section VII of the Measure M Final Guidelines, June 2017 (the "Final Guidelines").

- Additional Measure M funds are provided for and consistent with amendments in tandem with the Ten-Year Comprehensive Program Assessment permitted under the Ordinance. This process is addressed in the Measure M Comprehensive Program Assessment Process & Amendments Section III of the Final Guidelines.

- Redirection of Measure M sub-regional funds aligned with the project's location, so long as the project satisfies all sub-regional program eligibilities and procedures consistent with the Final Guidelines, and with the agreement of jurisdictions otherwise eligible for those sub-regional funds.

3. Twenty-Eight by '28 Funding Gap Challenges

When the Metro Board approved the project list in January 2018, 20 of the projects on the list were already slated for completion by 2028, and the remaining eight projects listed were planned for completion post 2028. In order to accelerate their delivery *by 2028*, staff needs to design a funding/financing plan to advance $26.2 billion, which represents the funding gap for the environmental, design, construction, operating, and maintenance costs for the eight projects.

Figure 3 Twenty-Eight by '28 Funding Gap

	Funding Gap Summary	Amount in Billions (YOE)
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Staff Recommended Baseline Assumptions/Priorities

As staff endeavors to put forth a funding/financing plan for 28 by 2028, it is important to identify critical baseline assumptions. The proposed "stakes in the ground" reflect items that are so vital to supporting the implementation, operations and maintenance of Metro's transportation services and facilities that those funds should not be deferred in an effort to bring $26.2 billion "gap" funds forward to accelerate Twenty-Eight by '28. These assumptions will inform the framework for the development of the funding/financing plan:

- NextGen – ensure that the funding/financing plan does not hamper the ability to implement the results of NextGen so the system is connected, efficient and utilized. Transit service must not be compromised to advance capital investments.

- State of Good Repair (SGR) – By 2028, Metro will have more than $20 billion in capital assets, including rolling stock, structures, facilities, equipment and infrastructure. An annual capital funding (SGR) level of roughly $475 million per year for rehabilitation and replacement of our capital assets will ensure that no more than 10% of our capital stock, by value, will exceed their FTA useful life benchmarks. These benchmarks are indicators of when an asset should be replaced or rehabilitated. While not an absolute, as assets begin to exceed their useful lives, they begin to fail with greater frequency with failure consequences depending on the asset type. These consequences could include decreased service reliability, increased operations and maintenance costs, a deterioration in the customer experience, and reduced safety performance;

- Do not increase current debt limits of Propositions A and C because these sales taxes are currently used to fund operations;

- Ensure the funding plan protects Metro's debt covenants to avoid impairing or adversely affecting the rights of bondholders. Issuing large sums of debt significantly increases repayment risk to bondholders. Investors' assessment of our ability to repay debt is critical to accessing capital in the financial markets.

- Unfunded Ancillary Efforts – ensure that the funding/financing plan does not defer funding for the following projects as they are needed to support implementation of Twenty-Eight by '28 and the integrity of existing Metro transportation assets:
    - Division 20 ($699 M) – without Division 20 expansion, the subway cars being acquired for the Purple Line extension will have no overnight storage yard or maintenance space,
    - Combined Rail Operations Center (ROC)/Bus Operations Center (BOC) ($190 M) – without a new ROC the rail system cannot be safely or effectively operated,
    - Maintenance & Material Management System -M3 ($50 M) – without a new M3, the state of good repair of the physical system cannot be effectively managed or addressed,
    - Train radio for existing subway system ($75 M) – without a new train radio for the expanded system, it cannot be safely or effectively operated, and
    - I-210 Barrier Wall ($200 M) – the intrusion problem on I-210 along the Gold Line must be solved for the long-term safety of the system.

Funding Plan Status for the 20 Projects Scheduled for Completion by 2028

It should be noted that for the 20 projects with schedules aligned with 2028, Measure M has pledged "other funding"; however, in many cases that funding has not been secured. In particular, discretionary funds may be needed to fully fund the projects and that is not soley under the Board's control. In addition, three of the projects are not Measure R or M and a portion of the funding has yet to be identified.

4. Potential Funding/Financing Tools to Address the Funding Gap

There are various tools that the Board could use to address the funding challenges. The tools below are grouped into two categories: tools within the Board's control and tools outside of the Board's control.

Risk Allocation Matrix (RAM)

The RAM identifies options that the Board, under its purview, could act upon to help address the Twenty-Eight by '28 funding challenges. The RAM assigns a risk level of "High", "Medium", or "Low" to each option. The table below summarizes how levels of risk were developed.

H	Financial and legal risks high Violation of sales tax ordinances Significant risk to agency and public
M	Some financial and legal risk to agency Impact to agency and public, but mitigation efforts available
L	Minimal impact to agency and public

The RAM list identified an estimated $4.1 billion in low, $16.5 billion in medium, and range of $65.3 billion - $129.1 billion in high risk options for the Board to consider. A selection from the menu of options (*See Attachment C*) could help bridge the financial challenges faced while assuming some level of risk.

Debt Policy/Debt Affordability Overview

The Metro Board approved Debt Policy restricts borrowing primarily to ***capital allocation categories of ordinances***.

Figure 4 Summary of Current Debt Policy

Sales Tax Ordinances	Categories Available for Bonding	Maximum Revenue used for Debt Service per Debt Policy
Proposition A	35% Rail Capital Revenues	87% of 35%
Proposition C	40% Discretionary; 25% Highway; 10% Commuter Rail	40% of 40%; 60% of 25%; 40% of 10%
Measure R	35% Transit Capital; 20% Highway Capital; 3% Metrolink Capital; 2% Metro Rail Transit Capital	87% of 35%; 60% of 20%; 87% of 3%; 87% of 2%
Measure M	35% Transit Construction; 17% Highway Construction; 2% Metro Active Transportation;2% State of Good Repair; 1% of Regional Rail	87% of 35%; 87% of 17%; 87% of 2%; 87% of 2%; 87% of 1%

Metro has debt outstanding for all of the sales taxes except for Measure M. Most of the debt is long term – outstanding for a 25-30 year period. A summary of the current debt outstanding is provided below:

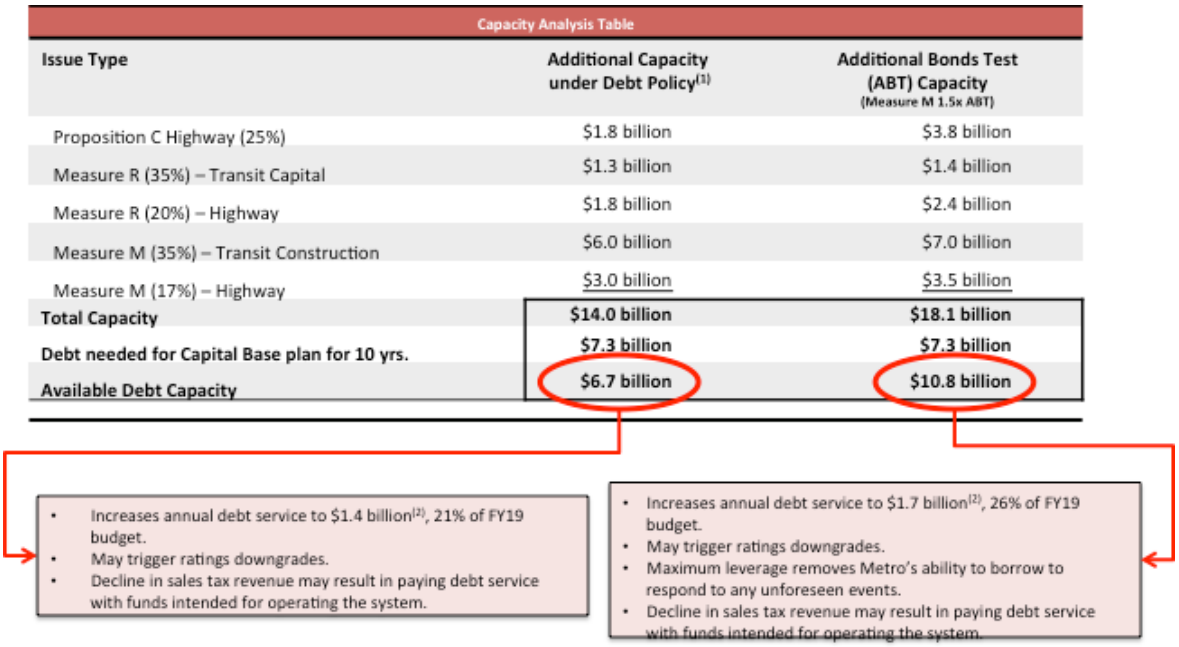
Figure 5 Current Debt Outstanding

Long-term Debt (as of 11-1-2018)					
Issue Type	**Principal Outstanding**	**Moody's**	**S&P**	**Fitch**	**KR**
Proposition A Bonds	$1,187,295,000	Aa1	AAA	NR	AA (Series Or
Proposition C Bonds	$1,326,345,000	Aa2	AA+	AA+	N
Measure R Bonds	$1,113,825,000	Aa1	AAA	NR	N
Measure R TIFIA Loans (Drawn to Date)	$1,211,303,044	NR	Private	Private	N
General Revenue	$88,910,000	Aa2	AA	NR	N
Total Long-term Debt	**$4,927,678,044**				
Short-term Debt					
Issue Type	**Principal Outstanding**	**Moody's**	**S&P**	**Fitch**	**KR**
Proposition A CP (ST Ratings for LOC Providers, MUFG Union Bank, SMBC, and Citibank)	$105,000,000	P-1	A-1	NR	N
Proposition C CP (ST Ratings for LOC Provider, Bank of America N.A.)	$68,885,000	P-1	A-1	NR	N
Proposition C Revolving Credit	$75,000,000	NR	NR	NR	N
Measure R Short-term Obligations	$65,422,743	NR	NR	NR	N
Total Short-Term Debt	**$314,307,743**				
Total Debt Outstanding	**$5,241,985,788**				

All Measure R and Measure M debt issuance must be reviewed by their respective Independent Taxpayer Oversight Committee for a finding of benefit, prior to Board approval.

Under the current Debt Policy, the debt capacity is $14 billion. Issuing to our legal limits could yield an additional $4.1 billion without changing our Debt Policy. NOTE: The maximum leverage leaves Metro without the ability to respond to unforeseen cost increases.

Figure 6 Debt Capacity Analysis



Capacity Analysis Table

Issue Type	Additional Capacity under Debt Policy[1]	Additional Bonds Test (ABT) Capacity (Measure M 1.5x ABT)
Proposition C Highway (25%)	$1.8 billion	$3.8 billion
Measure R (35%) – Transit Capital	$1.3 billion	$1.4 billion
Measure R (20%) – Highway	$1.8 billion	$2.4 billion
Measure M (35%) – Transit Construction	$6.0 billion	$7.0 billion
Measure M (17%) – Highway	$3.0 billion	$3.5 billion
Total Capacity	**$14.0 billion**	**$18.1 billion**
Debt needed for Capital Base plan for 10 yrs.	**$7.3 billion**	**$7.3 billion**
Available Debt Capacity	**$6.7 billion**	**$10.8 billion**

- Increases annual debt service to $1.4 billion[2], 21% of FY19 budget.
- May trigger ratings downgrades.
- Decline in sales tax revenue may result in paying debt service with funds intended for operating the system.

- Increases annual debt service to $1.7 billion[2], 26% of FY19 budget.
- May trigger ratings downgrades.
- Maximum leverage removes Metro's ability to borrow to respond to any unforeseen events.
- Decline in sales tax revenue may result in paying debt service with funds intended for operating the system.

The potential impacts of increasing the debt capacity by $4.1 billion (from $6.7 billion to $10.8 billion) include a spectrum of:

- Rating downgrades from leveraging to the "additional bonds test" (ABT)*;
- Debt service payments that exceed 20% of our annual budget;
- A decline in sales tax receipts may require using revenue intended for operating the system to pay debt service;
- Eliminates reserve of debt capacity that may be needed to meet emergencies; and
- Reduction in current agency services, programs and projects.

*NOTE: The ABT is a computation of the maximum annual debt service in comparison to current sales tax receipts that secure the Metro debt. In a press release on November 19, 2018, the Fitch Rating Agency announced that it

upgraded Metro's Issuer Default Rating from AA to AA+. Fitch noted that it "does not expect the Authority to leverage to the ABT. Rather, Fitch expects the Authority to comply with voter approved spending allocations and Board policies that require much of the pledged sales tax revenue to be spent on operations and uses other than debt service, limiting leveraging of the revenue stream."

Measure M Guidelines for Local Return & Multi-Year Sub-regional Programs (MSP)

As part of the "bottom up" approach to the development of the Measure M Expenditure Plan, each sub-region submitted a list of priority major capital projects for their area. The eight projects on the Twenty-Eight by '28 list with planned completion dates post-2028 were submitted as priority projects by a sub-region. As a result, the effort to develop a funding/financing plan for these projects also includes a review of the sub-regional funding that may be available to help accelerate these projects.

The eight accelerated projects are located within 27 jurisdictions that have the potential flexibility to direct investments towards these projects through their Local Return funding and MSP. In addition, local communities will receive a benefit due to the acceleration of the transit/highway project. The Institute for Applied Economics of the Los Angeles Economic Development Corporation estimated the economic impact of these construction projects as follows:

	Economic Impact				
Project	**Net Spending ($ millions)**	**Output ($ millions)**	**Jobs**	**Labor Income ($ millions)**	**Tax Revenue ($ millions)**
South Bay Sub-region					
South Bay LRT Ext	489	941	5,820	323	117
I-405 SB Curve	381	768	4,070	234	85
South Bay, Central, & Gateway Sub-regions					
I-105 Express Lane	166	335	1,780	102	37
Central & Gateway Sub-regions					
West Santa Ana	3,361	6,465	40,010	2,218	801
Gateway & San Gabriel Sub-regions					
Gold Line Eastside Extension (one alignment)	1,425	2,740	16,960	940	340
San Gabriel Sub-region					
SR 57/60	732	1,476	7,810	449	163
San Fernando Valley & Westside Sub-regions					
Sepulveda Pass Transit Corridor (Phase 2)	3,857	7,417	45,890	2,546	920

(excludes 710 South (Early Action) Project)

Local Return

Jurisdictions receive Local Return funding from Prop A, Prop C, Measure R and Measure M. The 10 year forecast of Local Return funding from all these sources for the 27 jurisdictions totals $2.7 billion.

Figure 7 Local Return Forecast for Cities that Benefit from Acceleration

		I-105 ExpressLanes	I-710 South Corridor Early Action Ph 1 only	South Bay Light Rail Extension	SR-57/60 Interchange Improvements	Sepulveda Transit Corridor	Gold Line Eastside Extension to Whittier or South El Monte	West Santa Ana Branch	I-405 South Bay Curve Improvements	PROP A/C MEASURE R/M LOCAL RETURN
	LOCAL JURISDICTION	**18**	**19**	**20**	**23**	**25**	**26**	**27**	**28**	**10yr Allocations**
1	ARTESIA							1		$ 12,184,139.57
2	BELL		1					1		26,379,648
3	BELLFLOWER							1		55,542,316
4	CERRITOS							1		36,256,075
5	COMPTON		1							72,491,863
6	DIAMOND BAR				1					41,347,533
7	DOWNEY	1						1		82,477,698
8	GARDENA								1	43,995,786
9	HAWTHORNE	1		1						63,516,059
10	HUNTINGTON PARK							1		43,026,330
11	INGLEWOOD	1								83,251,525
12	LAWNDALE			1					1	24,174,823
13	LONG BEACH		1							347,912,396
14	LYNWOOD	1	1							52,165,883
15	MONTEBELLO						1			46,311,468
16	MONTEREY PARK						1			44,637,018
17	NORWALK	1								76,459,533
18	PARAMOUNT	1	1					1		40,519,365
19	PICO RIVERA						1			46,404,936
20	REDONDO BEACH			1					1	49,927,004
21	ROSEMEAD						1			39,839,006
22	SOUTH EL MONTE						1			15,115,695
23	SOUTH GATE	1	1					1		71,465,166
24	TORRANCE			1					1	106,582,964
25	WALNUT				1					21,833,781
26	WHITTIER						1			63,549,388
27	LOS ANGELES CITY*	1	1			1	1	1		1,082,060,231
	Total Local Return - Affected Jurisdictions									**$ 2,689,427,629**

* Includes Central Cities and Sherman Oaks estimated allocations

MSP

Another consideration would be to work with the impacted sub-regions to allocate all, or a portion of their $864 million from the MM MSP to mitigate these funding challenges.

The tables below show amounts to be programmed to sub-regions as part of the MSPs. Only sub-regions that have Twenty-Eight by '28 projects are included. (No revenue is shown for MSPs that do not receive funding by FY2028 per the Expenditure Plan.)

Figure 8 below shows cash-flows through FY2028. The cash flow could potentially be used on Twenty-Eight by '28 projects. However, a portion will likely be programmed on other projects during FY2019. The South Bay sub-region has $464.1 million available for highway-eligible uses through FY2028 that could include Twenty-Eight by '28 projects.

Figure 8 MSP Forecast for Next 10 Years

Measure M Multi-Year Subregional Program Cashflows (FY 2018 - FY 2028)
$ in millions (Year of Expenditure) dollars

Program	Sub-region	Ground-breaking Start Date	Unallocated Balance from FY 2017/2018	FY 2018 FY 2019	FY 2019 FY 2020	FY 2020 FY 2021	FY 2021 FY 2022	FY 2022 FY 2023	FY 2024 FY 2028	10-Year Total Plus Unallocated Balance
Active Transportation, 1st/Last Mile, & Mobility Hubs	cc	FY 2018	$ 2.2	$ 2.2	$ 2.3	$ 2.3	$ 2.4	$ 2.4	$ 18.7	$ 32.5
Los Angeles Safe Routes to School Initiative	cc	FY 2033								
BRT and 1st/Last Mile Solutions e.g. DASH	cc	FY 2048								
Freeway Interchange and Operational Improvements	cc	FY 2048								
LA Streetscape Enhancements & Great Streets Prog.	cc	FY 2048								
Public Transit State of Good Repair Program	cc	FY 2048								
Traffic Congestion Relief-Signal Synchronization	cc	FY 2048								
Central City Area Subregion Total										**$ 32.5**
Active Transportation Program	gc	FY 2018				TBD				$ -
I-605 Corridor 'Hot Spot' Interchange Improvements [a]	gc	FY 2018	$ 12.4	$ 12.7	$ 13.1	$ 13.4	$ 13.7	$ 14.1	$ 107.9	$ 187.3
Gateway Cities Subregion Total										**$ 187.3**
South Bay Highway Operational Improvements [a]	sb	FY 2018	$ 11.0	$ 11.3	$ 11.6	$ 11.9	$ 12.2	$ 12.5	$ 95.8	$ 166.1
Transportation System and Mobility Improve. Prog.	sb	FY 2018	$ 3.5	$ 3.6	$ 3.7	$ 3.8	$ 3.9	$ 4.0	$ 119.9	$ 142.3
Transportation System and Mobility Improve. Prog.	sb	FY 2018	$ 19.6	$ 20.1	$ 20.6	$ 21.1	$ 21.6	$ 22.2	$ 30.5	$ 155.7
South Bay Subregion Total										**$ 464.1**
Active Transportation Prog. (Including Greenway Proj.)	sg	FY 2018	$ 2.3	$ 2.4	$ 2.4	$ 2.5	$ 2.6	$ 2.6	$ 20.1	$ 34.9
Bus System Improvement Program	sg	FY 2018	$ 0.6	$ 0.6	$ 0.6	$ 0.6	$ 0.6	$ 0.6	$ 4.8	$ 8.3
First/Last Mile and Complete Streets	sg	FY 2018	$ 2.0	$ 2.0	$ 2.1	$ 2.1	$ 2.2	$ 2.2	$ 17.2	$ 29.9
Highway Demand Based Prog. (HOV Ext. & Connect.)	sg	FY 2018	$ 2.3	$ 2.4	$ 2.4	$ 2.5	$ 2.6	$ 2.6	$ 20.1	$ 34.9
Goods Movement (Improvements & RR Xing Elim.)	sg	FY 2048								
Highway Efficiency Program	sg	FY 2048								
ITS-Technology Program (Advanced Signal Tech.)	sg	FY 2048								
San Gabriel Valley Subregion Total										**$ 108.0**
Active Transportation 1st/Last Mile Connections Prog.	w	FY 2018	$ 3.6	$ 3.7	$ 3.8	$ 3.9	$ 4.0	$ 4.1	$ 31.4	$ 54.5
Westside Subregion Total										**$ 54.5**

Notes:
[a] - Includes all funding sources programmed in the Expenditure Plan (page 3 of Attachment A) to subregional program.
Forecasts assume inflation. Revenue only for programs that receive funding by FY 2028 per the Expenditure Plan.

Figure 9 below shows cash flows through FY2057, which could be used on Twenty-Eight by '28 projects by borrowing against the funds. The South Bay sub-

region has $2.7 billion available for highway–eligible uses from FY 2029 to 2057 that could include Twenty-Eight by ‘28 projects. The San Gabriel sub-region has $1.3 billion available for highway & transit-eligible uses from FY2029 to 2057 that could include Twenty-Eight by ‘28 projects. NOTE: The eligibility of any individual MSP program would have to align with the Twenty-Eight by ’28 project.

Figure 9 MSP Forecast Post 2028

Measure M Multi-Year Subregional Program Cashflows (FY 2029 - FY 2057)
$ in millions (Year of Expenditure) dollars

Program	Sub-region	Ground-breaking Start Date	FY 2029 FY 2033	FY 2034 FY 2038	FY 2039 FY 2043	FY 2044 FY 2048	FY 2049 FY 2053	FY 2054 FY 2057	Total
Active Transportation, 1st/Last Mile, & Mobility Hubs	cc	FY 2018	$ 45.5	$ 52.7	$ 61.1	$ 70.8	$ 82.1	$ 75.0	$ 387.1
Los Angeles Safe Routes to School Initiative	cc	FY 2033							
BRT and 1st/Last Mile Solutions e.g. DASH	cc	FY 2048							
Freeway Interchange and Operational Improvements	cc	FY 2048							
LA Streetscape Enhancements & Great Streets Prog.	cc	FY 2048							
Public Transit State of Good Repair Program	cc	FY 2048							
Traffic Congestion Relief-Signal Synchronization	cc	FY 2048							
Central City Area Subregion Total									**$ 387.1**
Active Transportation Program	gc	FY 2018							$ -
I-605 Corridor 'Hot Spot' Interchange Improvements [a]	gc	FY 2018	$ 262.2	$ 303.9	$ 352.3	$ 408.4	$ 473.5	$ 432.5	$ 2,232.8
Gateway Cities Subregion Total									**$ 2,232.8**
South Bay Highway Operational Improvements [a]	sb	FY 2018	$ 232.6	$ 269.6	$ 312.5	$ 362.3	$ 420.0	$ 383.7	$ 1,980.8
Transportation System and Mobility Improve. Prog.	sb	FY 2018	$ 108.7	$ -	$ -	$ -	$ -	$ -	$ 108.7
Transportation System and Mobility Improve. Prog.	sb	FY 2018	$ 74.0	$ 85.8	$ 99.4	$ 115.3	$ 133.6	$ 122.1	$ 630.2
South Bay Subregion Total									**$ 2,719.6**
Active Transportation Prog. (Including Greenway Proj.)	sg	FY 2018	$ 48.8	$ 56.6	$ 65.6	$ 76.1	$ 88.2	$ 80.6	$ 416.0
Bus System Improvement Program	sg	FY 2018	$ 11.6	$ 13.5	$ 15.6	$ 18.1	$ 21.0	$ 19.2	$ 99.0
First/Last Mile and Complete Streets	sg	FY 2018	$ 41.9	$ 48.5	$ 56.3	$ 65.2	$ 75.6	$ 69.1	$ 356.5
Highway Demand Based Prog. (HOV Ext. & Connect.)	sg	FY 2018	$ 48.8	$ 56.6	$ 65.6	$ 76.1	$ 88.2	$ 80.6	$ 416.0
Goods Movement (Improvements & RR Xing Elim.)	sg	FY 2048							
Highway Efficiency Program	sg	FY 2048							
ITS-Technology Program (Advanced Signal Tech.)	sg	FY 2048							
San Gabriel Valley Subregion Total									**$ 1,287.5**
Active Transportation 1st/Last Mile Connections Prog.	w	FY 2018	$ 76.3	$ 88.5	$ 102.6	$ 118.9	$ 137.8	$ 125.9	$ 650.0
Westside Subregion Total									**$ 650.0**

Notes:
[a] - Includes all funding sources programmed in the Expenditure Plan (page 3 of Attachment A) to subregional program.
Forecasts assume inflation. Revenue only for programs that receive funding by FY 2028 per the Expenditure Plan.

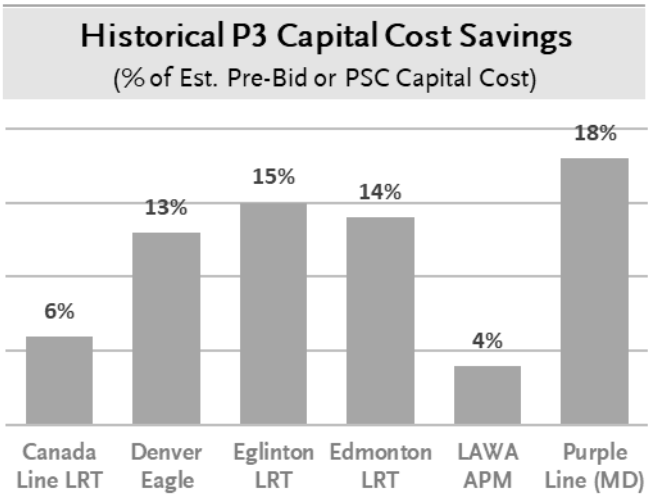
Public Private Partnership (P3) Project Assumptions & Benefits

P3 is a delivery and financing strategy – it is not a funding strategy.
The market determines the viability of a P3 based on a range of project and agency characteristics related to approach, cost, schedule, and risk. Not all projects are suited to P3 delivery.

Over the last 18 months, Metro has received a number of Unsolicited Proposals from the private sector indicating a potential interest in delivery of certain projects as P3s. Metro is currently performing additional study and diligence to determine the optimal structure for such P3s, including commercial approach, risk allocation,

and pricing, to support procurement when an sufficient level of project design is complete.

P3 project delivery has been shown to provide project cost and schedule certainty, and potential savings on capital, operations and maintenance (O&M), and state-of-good-repair costs. Design-Build-Finance-Operate-Maintain (DBFOM) procurements in the U.S. have achieved construction cost savings through competitive pricing, design innovation, and avoided cost inflation. The chart below shows some of the construction cost savings realized through P3 delivery for recent transportation projects in North America.



Benchmarked P3 projects also generally have lower O&M costs and lower escalation rates, reducing cumulative costs during operations. Finally, P3 developers have generally acted to perform state of good repair (SOGR) work earlier and more frequently, optimizing lifecycle investments.

The table below illustrates the possible P3 savings for three potential Metro projects based on assumed cost efficiencies in construction, O&M, and long-term capital replacement/SOGR over a projected 30-year operating period following construction. These efficiency assumptions are based on cost information across a range of projects and markets.

Project	Estimated Capital Cost ($ millions)	Potential Capital P3 Savings	Estimated O&M/SOGR Cost	Potential O&M/SOGR P3 Savings	Total Estimated Project Cost	Total Potential P3 Savings
West Santa Ana Branch	$ 6,312	($ 505)	$ 7,761	($ 1,269)	$ 14,073	($ 1,592)
Sepulveda Transit Corridor	$ 8,591	($ 687)	$ 10,569	($ 1,727)	$ 19,160	($ 2,167)
East San Fernando Valley	$ 1,563	($ 125)	$ 4,991	($ 816)	$ 6,554	($ 824)
Totals	$ 16,466	($ 1,317)	$ 23,321	($ 3,265)	$ 39,787	($ 4,582)

It's important to note that every market and project is different, and there are many variables specific to each market, project, and contract that influence the extent to which project savings are achieved, if at all.

State and Federal Funding Assumptions

State and federal funds are limited by funding availability each year and award cycles. The awards are based on eligibility and estimated future availability of funds. The state and federal funding for Measure M projects is programmed, and is projected to be awarded over time, as funding is available and open for application. The total funding is assumed limited and Metro expects to receive a proportional amount.

The advancing of state and federal funding would require that either more total funding is available, or Metro receives an increasing share throughout the State or US. In summary, Metro's committed and secured programming of funding for the Twenty-Eight by '28 projects is comprised of 15.4% in Federal funds and 11.8% in State funds; the remaining 72.85% is funded locally. In a Medium-Risk environment, we anticipate the funding shares to increase to 19.2% Federal and 14.5% State with 66.3% funded locally. In a High-Risk environment, the anticipated ratio would change to 22.1% Federal and 17.9% State with a 60.1% Local contribution.

LRTP Financial Projections
(Twenty-Eight by 2028 Projects) in $ million

All 28 Projects						
Total Funding by Fund Source (millions $)						
Funding Sources	**Today**		**Medium**		**High**	
Federal Funds	FY18-'27	% of Total		% of Total		% of Total
FASTLANE/INFRA Grants	40.5		44.6		TBD	
Congestion Mitigation & Air Quality Program (CMAQ)	406.6		447.3		TBD	
Section 5309 New Starts*	2,176.9		3,076.9		TBD	
Surface Transportation Block Grant Program (STBGP) formerly RSTP	34.8		38.3		TBD	
Expedited Project Delivery (EPD) Grant Program			25.0		TBD	
BUILD (formerly TIGER)			10.0		TBD	
Federal Total	**2,658.8**	**15.4%**	**3,642.0**	**19.2%**	**4,624.5**	**22.1%**
State Funds						
SB1 - Active Transportation Program	67.3		87.4		TBD	
SB1 - Solutions for Congested Corridors Program	149.8		249.8		TBD	
SB1 - Trade Corridors Program	269.0		336.3		TBD	
Regional Improvement Program Funds (RIP)	410.4		492.4		TBD	
Traffic Congestion Relief Program Funds (TCRP)			85.5		TBD	
Transit and Intercity Rail Capital Program (TIRCP)	1,151.5		1,496.9		TBD	
State Total	**2,048.0**	**11.8%**	**2,748.4**	**14.5%**	**3,743.5**	**17.9%**
Local Total	**12,585.5**	**72.8%**	**12,585.5**	**66.3%**	**12,585.5**	**60.1%**
TOTAL	**17,292.3**		**18,975.9**		**20,953.5**	

***New Starts Projects:**
Today, we currently have three FFGA in place for WPLE 1,2, Regional
Connector Medium Risk includes $1.3B FFGA for WPLE3
High Risk assumes $400m annual drawdowns maxed out through 2027 for WSAB and Sepulveda projects
EPD Grant Program - still in conceptual stage at the Federal level; slated to be funded by the General Fund. Projects with New Starts awards will not be considered for additional EPD funding.

Federal Funding Assumptions

Metro currently has three Section 5309 New Starts Full Funding Grant Agreements (FFGA) within the Capital Investment Grant (CIG) Program, which is the federal government's primary method of funding new rail transit projects. The multi-year funding agreement through which the CIG Program funds transit projects is achieved through a FFGA - which outlines the terms and flow of dollars (year over year) that will be committed to a transit project through the annual congressional appropriations process.

All three New Starts grant awards are Twenty-Eight by '28 projects – Regional Connector, and Westside Purple Line Extension Sections 1 and 2. Metro recently received a Letter of No Prejudice (LONP) from the Federal Transit Administration (FTA) for tunnel construction for another Twenty-Eight by '28 project, the Westside Purple Line Extension Section 3, in the amount of $491m. Metro is working closely with the FTA to secure federal funding for this project, as we are seeking an FFGA in the amount of $1.3 billion of New Starts funds.

If Metro is awarded this FFGA, the annual Federal drawdowns within the CIG Program will reach a total of $400m for all four projects, in 2019 and 2020. Assuming we maximize the $400m annual drawdown amount through 2027, this leaves us with limited additional capacity to draw upon for future Federal grant opportunities.

Whilst we will actively pursue any and all future grant opportunities, the amount and timing of these additional funds should not be assumed. (For example, our original LONP request was $786m, $294m more than the actual FTA approval amount of $491m.) Our high risk projections assume we will seek New Starts funds for two additional Twenty-Eight by '28 projects – West Santa Ana Branch and Sepulveda Pass Transit Corridor, bringing our total Federal contribution up to 22.1% for the Twenty-Eight by '28 projects (inclusive of Federal funds from programs such as Congestion Mitigation & Air Quality (CMAQ), FASTLANE/INFRA Grant and Surface Transportation Block Grant (STBG)). If the total Federal share of the CIG Program does not increase, the risk of obtaining the required funds for these two projects, prior to 2028, will be high.

Future additional funds may be available via the Pilot Program for Expedited Project Delivery (EPD), which is still in the conceptual stage at the FTA and only $25m has been identified for projects nation-wide. If the total EPD funding pool amount increases with future Federal appropriations, Metro could potentially apply for a grant opportunity that is favorable and in line with the Twenty-Eight by '28 initiative.

State Funding Assumptions

The State-approved increase in fuel and other transportation taxes is expected to direct around $4 billion of SB1 funding to Metro over the next 10 years (based on State forecasts). The SB1 funds provide for both operating and capital costs, and are allocated to Metro by formula and through competitive, discretionary programs. Metro's capture of State discretionary programs includes grant awards announced in spring 2018 of $1.7 billion, including $700 million from SB1 and $1.0 billion from the "Cap and Trade" Transit and Intercity Rail Capital Program (TIRCP).

We are assuming a total of roughly $2.0B in State funds for the Twenty-Eight by '28 initiative, over the next nine years; 11.8% of the total required funding share. If we assume an additional $700m of potential future funds across SB1 and TIRCP, this would pose a Medium-Risk and would increase the total state funding contribution to 14.5%. Since an increase in State funding capacity is unknown, any assumption above 12% presents a risk, unless there is an increase to the overall State's base fund.

New Revenue Primer: New Mobility Fees & Congestion Pricing

As we explore development of a funding/financing plan for Twenty-Eight by '28, the identification of potential new revenue sources is appropriate for consideration by the Metro Board.

New Mobility Fees

Background and Justification

Technological innovation is changing the ways that consumers access goods and services. Most dramatic has been the rise of transportation network companies (TNCs), such as Uber and Lyft, enabling new and better demand-responsive travel options for many people. But these private companies are in the business of profiting from public investments in roads and infrastructure that enable their success, putting out shared bicycles, scooters, and cars on the streets with the expectation of using public rights of way to generate private benefit.

In response to these new services, 7 major cities and 12 states have started levying fees or taxes on TNC trips to serve a variety of purposes, including revenue generation, congestion management, parity of compliance, and transportation equity.[1] Other cities have put in specific regulations to cap or regulate new mobility providers.

[1] See "Taxing New Mobility Services: What's Right? What's Next," by So Jung Kim and Robert Puentes. Eno Center for Transportation. July 23, 2018

New Mobility Fees Today

Several urban areas have instituted fees on TNCs. The most common ways to tax TNCs are to charge a flat per-ride fee or to collect a percentage of the total fare revenue of a TNC on a regular basis. Another approach could be to utilize a tiered tax approach to encourage preferred travel behaviors, such as lower fees for shared rides or fuel-efficient vehicles, higher fees for rides that originate or end in congested areas, or fee waivers to encourage services to underserved areas of the County, such as low-income neighborhoods.

Potential Policy Objectives

1. **Generate revenue for investment in transit and infrastructure**
   Taxes and fees are common tools used to raise revenue for public goods and services. Levying a fee on TNC or other new mobility trips originating in Los Angeles County serves as a potential revenue opportunity for Metro to then reinvest in its own transit and infrastructure.
2. **Manage congestion through influencing supply and demand**
   Fees for TNC trips is one form of pricing that can be utilized to manage demand in the most traffic-clogged areas of the County, ensure that customers prioritize shared rides over single passenger rides, or even to incentivize a substitution to transit use instead.
3. **Bring the new mobility industry into regulation**
   Instituting fees on TNCs can serve as the beginning of a more comprehensive regulatory plan to set the rules of engagement for private new mobility providers, for known (i.e scooters) or future options yet to manifest.
4. **Support programs that improve transportation equity**
   Taxes or fees on TNC trips can help improve transportation equity by either influencing behavior directly or by putting revenues towards supporting programs with similar goals such as the recently signed SB1376, requiring the CPUC to assess at least $.05 per TNC ride to help pay for wheelchair accessible vehicles (WAVs).

Estimated Revenue Potential from New Mobility Fees

The exact number of rides provided by all ridehailing services in Los Angeles County is unknown because these private companies are very protective of their data. However, we know that in 2016 Lyft averaged 70,000 rides a day in Los Angeles County, with about 20% market share.[2] These trips cost $9.66 on average.[3] We can therefore estimate that the entire ridehailing market provided roughly 350,000 rides a day in LA County in 2016 numbers, and know that both Lyft and Uber have continued to increase in popularity since then. Using our estimate that amounts to revenues between $70,000 to $962,500 per day, or

[2] Brown, Anne Elizabeth. “Ridehail revolution: Ridehail Travel and Equity in Los Angeles,” Institute for Transportation Studies, UCLA, Jan. 2018.
[3] Ibid.

between approximately $25M to $350M annually. The shared devices are projected to generate up to $552M annually.

In summary, new mobility services have both positive and negative impacts. Any decision to enact a tax or fee should consider how it will affect travel behaviors, and should be made with consideration towards the goals outlined in Vision 2028. Taxes on new mobility services can go beyond raising revenue and can work towards improving the quality of life for LA County residents. Any mechanism for taxing these new mobility trips should be used in carefully targeted ways designed to reduce single-occupancy vehicle use and improve metropolitan mobility.

The complete Primer on New Mobility Fees is provided in *Attachment D.*

Congestion Pricing

Background and Justification

The concept of congestion pricing has been around for decades and dates back at least to Nobel Prize winning economist William Vickrey. Simple supply and demand will tell you that when you provide something for free, people use more of it than they would otherwise. This means charging higher fees for roadway use when demand is high and lower or zero fees when demand is low, a concept known as congestion pricing.

The price of a road (usually zero) bears no relationship to demand for that road at that time. For example, it costs the same to use a road at 3am as it does in the peak of rush hour traffic, even though demand for roads is much lower at 3am. The net effect is that instead of paying for roadway space with money, we all pay with our time.

We waste our time sitting in traffic, essentially waiting in line, to use roads. This vastly inefficient method of allocating roadway space may seem very democratic, in the sense that all must pay with their time. However, it actually discriminates against the poorest and most vulnerable members of society. Transit riders, who have far lower incomes than non-riders in Los Angeles County, use buses that sit in that same slow traffic. Moreover, low-income people typically have less flexible work schedules with hourly wages and face severe penalties for lateness. Whereas higher-income individuals may be able to shift their travel times or work from home to avoid congested periods, lower-income people often cannot.

Congestion Pricing Today

Congestion pricing has proven challenging to implement for reasons such as lack of political viability, technical and privacy concerns, and equity concerns. Despite these challenges, several metropolitan areas have implemented various forms of congestion pricing. Once implemented, these schemes have had various degrees of success but, notably, none have ever been repealed. This includes the only

congestion pricing pilot of any kind implemented to date in Los Angeles County, Metro's Express Lanes program.

More comprehensive congestion pricing schemes are currently in place in London, Stockholm, Singapore, and Milan. Each of these experiences offers lessons learned, but perhaps most notable is Stockholm. In this city, the congestion pricing scheme was widely opposed and was put in place on a pilot basis. After the trial period, the scheme proved so popular that it was accepted permanently. This demonstrates the value of a pilot period to test such a product, and to demonstrate its value, before casting judgment.

Congestion Pricing Models and Revenue Forecasts

In Los Angeles, there are three conceivable ways congestion pricing could be implemented. These are the following:

1) *Cordon Pricing*. It involves creating a boundary around a central district and then charging vehicles to cross that boundary. The fee can be variable, meaning it can go up or down based on demand. Alternatively it could be set at a specific rate for peak versus off-peak times. Either way, the idea is to reduce the number of vehicles entering a central area when demand is higher. This is the most common method of congestion pricing employed around the world.

   Cordon pricing is most effective when there is a strong Central Business District (CBD) with high quality mass transit options as alternatives to driving. Los Angeles County does not have a typical CBD, as job centers are dispersed throughout the region. Preliminary average revenues from cordon pricing of all trips entering downtown LA have been estimated to be as high as $1.2 billion per year (in year of expenditure dollars). This form of pricing is among the easiest to implement and has the most history to learn from.

2) *VMT Pricing*. Charging drivers based on Vehicle Miles Traveled (VMT) has been floated for many years as a potential substitute for a gas tax. However, a VMT fee platform can potentially be used to charge variable prices based on location and time of day. There have been VMT-fee experiments in California, Oregon, and Iowa. While none of these pilots have attempted to include additional fees for congestion, the Oregon pilot tested the idea by calculating the number of miles driven in the "congestion zone". In short, the technology exists to use VMT as a method of alleviating congestion but it has not yet been attempted due to political challenges.

   Preliminary average annual revenues from implementing VMT pricing have been estimated at $10.35 billion per year (in year of expenditure dollars) for the larger metropolitan area. While net revenues from Los Angeles County

alone would be less, Los Angeles County is the most populous part of the region and accounts for more VMT than the rest of the region. This estimate provides a sense of the strong revenue potential of such a scheme.

3) *Corridor Pricing*. Corridor pricing is a new kind of congestion pricing that has not been implemented anywhere. The idea is to price all lanes on all roads within a specific corridor with high traffic congestion but a viable public transit alternative. Functioning similar to cordon pricing, anyone traveling within a designated corridor during peak times would pay a fee based on how many miles they travel within the corridor. The price for travel within the corridor would be set high enough to ensure free flow traffic within that entire corridor.

Absolute revenues vary greatly, largely because the tolled areas vary considerably in their size and the demand for the road space they allocate.

In summary, Congestion pricing offers a powerful mobility solution that faces substantial barriers to implementation, but once implemented, tends to prove highly popular while generating substantial revenues that can be used for transit. In addition, congestion pricing can represent a significant improvement in equity.

The complete Primer on Congestion Pricing is provided in *Attachment E.*

5. Board Call to Action

The Metro Board is in a unique position to aid in the development of a funding/financing plan for Twenty-Eight by '28. The Board Call to Action items are recommended as follows:

- Approve the Baseline Assumptions/"Stakes in the Ground" recommended by staff;
- Include in the 2019 Federal Legislative Plan a Request for the Establishment of a White House Task Force re: Transportation Infrastructure Support for the 2028 Games;
    - The federal government has provided significant funding and support for the Olympic Games when held in the US (i.e. 1984, 1996, 2002). 74% of the past federal support has been for projects related to preparing the host cities' infrastructure.
- Continue to support and explore the use of innovative project delivery approaches, such as P3s, along with supportive changes to state and federal law and policy;
- Advocate for additional State and Federal Funding to support acceleration of projects;
- Minimize scope increases for Twenty-Eight by '28 projects;

    - The “triple constraints” rule for major projects states that any increase in scope can impact budget and schedule. As a result, it is important that Board decisions are made on schedule with the forecast milestones. In addition, increases in scope should be minimized in order to increase the likelihood of completing the Twenty-Eight by ’28 Initiative.
- Direct the Executive Management Committee to agendize and further frame the debt policy issues; and
- Direct Metro staff to conduct Feasibility Studies for a Congestion Pricing Pilot and a New Mobility Policy Strategy

APPENDICES

Attachment A – The Dashboard
Attachment B – The Policy for Early Project Delivery
Attachment C - RAM Listing
Attachment D – Primer on New Mobility Fees
Attachment E – Primer on Congestion Pricing

TWENTY-EIGHT BY '28 PROJECT LIST DELIVERY STATUS (updated November 2018)

Project	Measure M Completion Date[1]	Schedule (Measure M)	Phase	Target 28x28 Completion Date	Accomplishments	Status
1. Crenshaw/LAX Line	2019			2019	• Progressing with construction	• In construction; • Over 85% complete; • Forecast revenue service date is under review
2. MicroTransit **	2019	ON SCHEDULE		2019	• Awarded design contracts in April 2018 • Completed Interim Report in August-September 2018	• In design phase; • Final Report/Proposal to be completed in January 2019; • Anticipate launch of MicroTransit pilot in late 2019.
3. Regional Connector	2021	ON SCHEDULE		2021	• Completed Tunneling operations in January 2018 • Completed excavation of Broadway station • Completed decking of Flower Street • Zero Lost Time Incidents	• In construction; • 52% complete; • Forecast revenue service date is winter 2022
4. New Bus Rapid Transit Corridors (Phase 1)	2022	ON SCHEDULE		2022	• RFP for BRT Vision and Principles Study released on May 10, 2018	• Corridor will be identified and analyzed through the BRT Vision and Principles Study. Anticipated Notice to Proceed in October 2018.
5. Orange and Red Lines to Gold Line Transit Connector (North Hollywood to Pasadena)	2022	ON SCHEDULE		2022	• Technical and Outreach contracts awarded in May/June 2018, respectively.	• Alternatives Analysis (AA) underway as of July 2018 • Five community (pre-scoping) meetings scheduled between 9/29/18-10/13/18; other public outreach activities ongoing in fall 2018 • Complete AA, Board action to select alternatives for EIR, Public Scoping expected in spring 2019
6. Airport Metro Connector Station	2023	ON SCHEDULE		2023	• 60% package for site work completed • Begun coordination with LAWA's APM design team in integrating the AMC Station with the Automated People Mover project.	• Progressing towards 60% design completion, anticipated for November 2018 • 60% package for temporary shoofly scheduled for mid-October
7. I-5 North County Capacity Enhancements	2023	ON SCHEDULE		2023	• Design on schedule and within budget	• In final design; • 95% plans submitted to Caltrans for review; • Target date for start of construction is 2019
8. North San Fernando Valley	2023	ON SCHEDULE		2023	• Technical and Outreach contracts awarded • Five community meetings held September 2018 across the study area	• Alternatives Analysis began July 2018 and is expected to be completed in spring 2019 • Public Participation activities ongoing fall 2018 • Board Action anticipated in April 2019 to receive the Alternatives Analysis and to select alternatives for Environmental Review • Anticipate scoping to begin late spring 2019
9. Purple Line Extension Section 1	2023	ON SCHEDULE		2023	• Excavation and waler/strut installation completed July 2018 • TBM components lowered into the station box for assembly in August 2018 • Tunneling to start September 2018	• In construction; • Over 41% complete; • Forecast revenue service date is fall 2023

Project	Measure M Completion Date[1]	Schedule (Measure M)	Phase	Target 28x28 Completion Date	Accomplishments	Status
10. Gold Line Foothill Extension to Claremont (with ability to extend to Montclair)	2025	ON SCHEDULE		2025	• Released Request for Proposals for the Phase 2B Alignment Design-Build Project (C2002) in May 2018; • First contract (utility relocation) for Foothill Gold Line Light Rail Project completed under budget and ahead of schedule	• Anticipate Design-Build Contract award by January 2019; • Major construction expected to start in 2020; • Construction anticipated to be completed in 2026
11. LA River Path	2025	ON SCHEDULE		2025	• Technical and Outreach contracts awarded	• Conceptual Design Report under review • 5% Conceptual Drawings under review • Pre-environmental outreach underway • Anticipate scoping to begin late spring to early summer 2019
12. LA River Way (plus Mobility Hub**) – San Fernando Valley	2025	ON SCHEDULE		2025	• City of LA nearing completion of environmental document	• CEQA document anticipated to be certified spring 2019; • Pursuing NEPA clearance in separate document; • Working on 30% design for Van Alden to Balboa segment in anticipation of award of ATP Cycle 4 grant.
13. Orange Line Travel Time and Safety Improvements	2025	ON SCHEDULE		2025	• Board approved project description and Statutory Exemption at the July 2018 meeting; • NOE circulation period ended Aug. 29, 2018	• Construction Groundbreaking to be held on Oct. 12, 2018; • Continuing work on gating traffic impact analysis and coordination with LADOT; • Preliminary Engineering and Community Outreach are ongoing; • Coordination with other SFV transit projects underway
14. Purple Line Extension Section 2	2025	ON SCHEDULE		2025	• Groundbreaking ceremony held on February 23, 2018; • Bureau of Engineering approved a nine-month street closure of a small part of Constellation in May 2018; • Demolition of the 1940 Century Park East building and 1950 CPE parking structure have been completed; • 130c Tech Memo for N. Canon completed in Sept 2018	• In Engineering; 11% complete; • Forecast revenue service date is Summer 2025
15. Purple Line Extension Section 3	2026	ON SCHEDULE		2026	• Addendum approved by Metro Board in May 2018; • FTA approved Entry into FTA New Starts Engineering Phase in August 21, 2018; • FTA LONP approved on Sept 19, 2018	• Construction contracts expected to be awarded late 2018 and early 2019; • Forecast revenue service date is winter 2026

Project	Measure M Completion Date[1]	Schedule (Measure M)	Phase	Target 28x28 Completion Date	Accomplishments	Status
16. Sepulveda Pass ExpressLanes	2026	AHEAD OF SCHEDULE		2026	• Finalizing Level 2 Traffic and Revenue Study • Preparing scope of work for technical studies • Coordinating with Planning on the Sepulveda Transit Corridor Study	• Currently working on the Tier 1 ExpressLanes Network Project Study Report/Project Development Support (PSR/PDS) which includes this project slated for completion in the summer/fall of 2019; • Upon completion of PSR/PDS, an application will be submitted to the CTC in fall 2019 to obtain tolling authority; • Staff is coordinating efforts with transit studies underway
17. East San Fernando Valley	2027	ON SCHEDULE		2027	• Metro Board selected an LPA in July 2018 and authorized staff to execute scope modifications to complete: Grade Crossing Safety Study; Metro Orange Line Connectivity Study; ACE; and a First Last Mile Plan. • Work on Final EIS/EIR initiated along with work on Board approved scope modifications.	• Work being conducted on Final EIS/EIR; • Anticipate Board certification of Final EIS/EIR in early 2019
18. I-105 ExpressLanes	2029	AHEAD OF SCHEDULE		2027**	• Continuing to work with Caltrans to prepare PAED. • Investment Grade Traffic and Revenue Study and Concept of Operations underway • Scoping meetings held in March 2018 • Coordinating with West Santa Ana Branch (WSAB) team on potential new I-105 WSAB/Green Line station	• The development of a Project Approval Environmental Document (PAED) is underway and slated for completion in early 2020; • Concept of Operations and Traffic and Revenue studies are currently underway; • An INFRA grant was submitted for this project in an effort to expedite project delivery to commence operations in 2025; • Staff anticipates submitting an application to the CTC to obtain tolling authority in the summer/fall of 2018; • If funds are advanced, the project can be completed before the target completion date
19. I-710 South Corridor Early Action	2032	AHEAD OF SCHEDULE		2027**	• Metro Board adopted Alternative 5C as the Locally Preferred Alternative for addition of one lane and upgrading the freeway	• In environmental phase; anticipated completion date of the final environmental document is early 2019; • Discussions with Caltrans in progress to expedite; • Potential lawsuit(s); • Once the environmental document is final/approved, contracts for final design of “early action” projects will commence
20. Green Line Light Rail Extension to Torrance	2030	AHEAD OF SCHEDULE		2027**	• Presented Supplemental Alternatives Analysis (SAA) including incorporation of stakeholder/city feedback and refinement/updates to alternatives to the Board at September 2018 meeting • Board approved carrying forward Alternative 1 and Alternative 3 for environmental review	• Re-initiation of environmental review is next phase of project

Project	Measure M Completion Date[1]	Schedule (Measure M)	Phase	Target 28x28 Completion Date	Accomplishments	Status
21. Blue Line Signal and Washington/Flower Junction Improvements*	2028	ON SCHEDULE		2028	• RFP released, and proposals were due on April 13, 2018	• Notice to Proceed received June 2018, with construction (on entire Blue Line) starting in January 2019; • Construction on Washington/Flower junction anticipated to occur in spring/summer 2019
22. I-10 ExpressLanes I-605 to San Bernardino Line*	2027	ON SCHEDULE		2027	• Coordinating with San Bernardino County Transportation Authority • Coordinating with Caltrans District 7 regarding Network Project Study Report and related technical studies	• Project is in construction being built as HOV lanes; conversion to ExpressLanes upon completion of construction; • No funding has as yet been identified for ExpressLanes implementation; however, the ExpressLanes Tier 1 Network Project Study Report/Project Development Support (PSR/PDS) currently underway will complete the initial study for this effort
23. SR-57/60 Interchange Improvements	2031	AHEAD OF SCHEDULE		2028**	• Final design contract award approved by the Metro Board in September 2018 for a three-year or faster period of performance;	• Construction start by 2022
24. Vermont Transit Corridor	2028	ON SCHEDULE		2028	• Key stakeholder meetings to discuss initial six preliminary rail concepts and potential refinement of BRT concepts took place in April/May 2018; • Identified six preliminary rail concepts for the corridor; • Based on an initial set of criteria, identified the three most promising rail concepts to move forward into the next level of detailed analysis	• BRT Technical Study was completed in February 2017; • Rail Conversion/ Feasibility Study, which will explore the feasibility of converting proposed BRT concepts to rail, began in December 2017; • October 2018 – Currently conducting key stakeholder meetings to discuss the results from the more detailed analysis of the three most promising BRT concepts
25. Sepulveda Transit Corridor	2033	AHEAD OF SCHEDULE		2028**	• Elected officials roundtable meetings, as well as outreach to major study area stakeholders held in April 2018 • Developed initial concepts for the Valley to Westside portion of the study area • Completed first round of community outreach in June 2018	• Feasibility Study/Technical Compendium began December 2017 and is expected to be completed by fall 2019, with findings presented at the November 2019 Metro Board meeting; • Evaluating Valley to Westside initial concepts and developing Westside to LAX initial concepts
26. Gold Line Eastside Extension to Whittier or South El Monte	2035	AHEAD OF SCHEDULE		2028**	• Executed the new outreach contract with consultant in July 2018 • Completed the contract amendment negotiation process for the reinitiated environmental study in August 2018. • Released RFP for the advanced conceptual engineering work in March 2018, completed the consultant selection process and contract negotiation process as of September 2018 • Conducted one round of briefings with corridor cities	• Anticipate award of new contracts in October 2018 to reinitiate the environmental study, including the negotiated Contract Modification No. 18 to CDM Smith/AECOM for the EIS/EIR work and the new advanced conceptual engineering (ACE) design services contract in support of the environmental study.

Project	Measure M Completion Date[1]	Schedule (Measure M)	Phase	Target 28x28 Completion Date	Accomplishments	Status
27. West Santa Ana Branch	2041	AHEAD OF SCHEDULE		2028**	• Received Board approval in March 2018 for further study to expand northern study options; • Conducted community meetings in March 2018 to share new northern alignment concepts and solicit feedback; • Completed an Updated Northern Alignment Screening Report in May 2018. Received Board approval on May 24, 2018 to carry forward Alternatives E and G into the Draft EIS/EIR; • Held updated Scoping Meetings in July 2018. Scoping comment period ended August 24, 2018.	• Draft EIS/EIR work continuing; • Significant resources are currently devoted to preparing for P3 procurement; • Project planning, design, environmental clearance, engineering and P3 delivery procurement work are actively being accelerated with multiple standing Metro interdisciplinary teams in place
28. I-405 South Bay Curve Improvements	2047	AHEAD OF SCHEDULE		2028**	• Two task orders for widening and auxiliary lanes were awarded to consultant in March 2018 via the Highway Program on-call services contract with a seven-month period of performance;	• Upon completion of PSRs (expected in October 2018), the two projects will be advanced to environmental and final design; • Discussions with South Bay Cities COG in progress to fund the projects by their Measure R/M subregional highway allocations.

* non-Measure R nor Measure M project
** These accelerated completion dates can only be accomplished with Board approved actions pertaining to the Twenty-Eight by '28 Motion (Motion #4.1)
1 – Expected completion date has a 3-year range. First year of expected opening date shown.


AA/Technical Report


Environmental


Design/Engineering


Construction

Adopted Metro Board Policy: Early Project Delivery Strategy

EFFECTIVE DATE:
November 30, 2017

TITLE
- This Policy shall be referred to as the **Early Project Delivery Strategy**.

PURPOSE
- This Policy establishes clear, uniformly applied criteria to determine if a Measure M Project can be delivered faster than scheduled in the Measure M Expenditure Plan. A comprehensive policy allows for rigorous and expeditious analyses and determinations. It provides for transparency and financial accountability. Projects can be accelerated as long as others are not negatively impacted, pursuant to the Measure M Ordinance.

PROCESS
1. Identify multiple inputs that suggest a potential for acceleration. A screening tool will then be utilized to assist in identifying the inputs that potentially have occurred and whether an initial assessment of the propensity for acceleration is warranted.
2. If warranted, staff will then conduct an analysis to confirm the ability to accelerate a project schedule, determine the extent to which a project could be accelerated and what would be the impacts of that action.
3. The Board of Directors will review the staff analysis and may: (a) give direction to subsequently provide notice and take action pursuant to controlling law; (b) decline to find for early project delivery; or (c) direct staff to undertake further analysis.

GENERALLY
- Multiple acceleration inputs are typically needed to result in accelerating a project schedule.
- A project's funding, schedule, scope or legal/regulatory environment are integral to the acceleration inputs.
- Acceleration inputs considered may also indirectly relate to the project if they are demonstrated to substantially advance system performance or adopted policies of the Board.
- Acceleration inputs are intended to be transportation mode-neutral, unless otherwise indicated (e.g., mode-specific funding revenues or fees).
- Funding considerations must be consistent with all applicable local, state, and/or federal rules and regulations; and Board-adopted debt policy.

DEFINITION
- **Accelerator:** a single strategic input that could partially support facilitating early delivery of a Measure M project.

STRATEGIC INPUTS FOR EARLY PROJECT DELIVERY

	Accelerator	Points
Funding (30 points)	1. **New Revenue.** Has new, committed funding become available at an amount greater than 25% of the total project construction cost?	15
	A. Is this funding discretionary?	2
	B. Is this funding somehow conditional to the project or time-sensitive?	5
	C. Is funding cash flow available sooner as a result of a delayed project?	3
	D. Are confirmed surplus funds available from another project in the same subregion, based on a final Life of Project budget?	2
	E. Would there be cost savings of at least 25% based on the time value of money resulting from this funding accelerator?	3
Partnerships (30 points)	2. **Regional Responsibility.** Have one or more of the local jurisdictions within which the project is located substantially advanced or committed to advancing the implementation of one or more Metro Board adopted goals and policies that support the integration of transportation and land use for which Metro is reliant upon its local partners to achieve?	6
	3. **Process Streamlining.** Have all responsible local agencies streamlined permitting processes and executed or committed to executing necessary memoranda of agreements prior to awarding of the project construction contract?	5
	4. **Additional Support.** Is the local jurisdiction and/or other local partner contributing at least 10% more than the required 3% contribution or 5% of the project cost within that jurisdiction from other sources?	5
	5. **Value Capture.** Is a local improvement, financing district or other value capture financing tool existing or will be established within three years of the groundbreaking date for the purpose of funding at least 10% of the project cost within the jurisdiction in which the financing tool is established?	5
	6. **Advance Funding.** Is there a proposal by a local jurisdiction or other party to advance funding, which would deliver all or a functional segment of the project 10% earlier?	5
	7. **Impact Fees.** Is there a program to collect a fee in-lieu of providing required parking and/or local traffic improvements, with revenues allocated to transportation demand management (TDM) strategies that are directly dependent on and in support of Metro's project, or a goods movement impact fee program to fund improvements, in conformance with California and federal laws?	4

	Accelerator	Points
Process (25 points)	8. **Streamlined Review.** Is this project currently undergoing or can commit to a streamlined planning and environmental review process that does not exceed three years in duration?	5
	9. **Clearance Complete.** Has this project concluded the planning and environmental review process, needing no more than a refresh of the environmental document(s), not exceeding one year in duration to complete (Operation Shovel Ready)?	10
	10. **Phased Completion.** Can this project be designed to phase improvements to achieve early action, incremental benefits?	8
	11. **Property Availability.** Has at least 75% of the required right-of-way and site acquisitions been completed or is anticipated to be completed within one year?	2
Innovations (15 points)	12. **Alternative Solutions.** Is there an equal or superior, less costly improvement to accomplish the capacity and performance intended by the transportation project?	3
	13. **Technological Innovations.** Are there technological innovations that will reduce the planned capital and/or operating cost of the project?	3
	14. **Consolidated Delivery.** Is there an opportunity to combine two or more projects/segments to achieve economy of scale and minimize impacts of multiple back-to-back construction over a long period of time such that the combined project construction cost is reduced by at least 25%?	3
	15. **Delivery Method.** Is this project the subject of a public-private partnership proposal or other unsolicited proposal that can reduce the estimated construction cost by a minimum of 10% or accelerate the delivery date by at least 5 years?	6

PROPENSITY FOR EARLY PROJECT DELIVERY

High:	67-100	Automatically advances to staff analysis and Board consideration
Medium:	34-66	Advances to staff review, which determines whether Board consideration is warranted
Low:	0-33	Does not advance to staff review nor Board consideration
Exception:	N/A	Project acceleration can unambiguously be demonstrated by an exceptional condition regardless of scoring (e.g., unexpected full funding from outside source)

MEASURE M PROJECT EVALUATION READINESS TOOL (M-PERT)

- M-PERT is an evaluation tool only—not a determinative decision tool.
- Required initial screening step (unless exceptional condition, per above).
- All Measure M projects ordered as listed in the Expenditure Plan are included.
- The above acceleration strategic inputs are set forth as "yes" or "no" questions to answer.
- A score given to each input to measure its relative strength in impacting project timing; a "yes" answer returns the possible score for that input, as listed above.
- An overall score given as a low, medium and high indicator for acceleration.
- An accounting of evaluations conducted is logged and reported.
- The M-PERT tool is for use by Metro staff, Board Directors and their deputy staff.

MAINTAINING PROJECT SCHEDULES: HOW TO HELP METRO DELIVER PROJECTS

	Responsibilities
Funding	• Protect all funding sources allocated to the project, per Metro's financial plan.
	• Keep the project within the budgeted cost identified in the Measure M Expenditure Plan.
Partnerships	• Request design features that have a rational nexus to potential project impacts.
	• Minimize permitting requirements and ensure that ministerial actions are a staff-level decision, done timely.
	• Establish and maintain an effective, genuine public and stakeholder engagement process.
Process	• Select a Locally Preferred Alternative that can be constructed within budget or augmented with reasonably expected, new outside funding sources that are needed to achieve desired community goals and compatibility.
	• Pursue constructive conflict resolution, creativity and solutions that are in rough proportionality to the problem to avoid litigation delays.
	• Thoroughly address environmental issues and avoid project design features that trigger costly mitigation measures.
Innovations	• Rely upon current, proven technology for the project design, rather than await speculative innovations.
	• Seek any necessary regulatory reform and streamlining to allow the rapid deployment of any available state-of-the-art, proven technologies that can increase capacity, reduce travel times or improve safety, which can help keep the project on time and at or below budget.

DISCLOSURE AND RECOVERY PLAN

- A disclosure and recovery plan shall be prepared for a project at risk for delay.

ANNUAL REPORTING AND EVALUATION

- The CEO shall report annually on activities and actions pertaining to this Policy, including projects being considered for early project delivery, the number of screening inquiries conducted for each project using M-PERT and projects under or being considered for a Disclosure and Recovery Plan.

28 x 2028 Strategy Listing

Summary Description	Risk	Comments	10-Yr Estimate
DEBT			
Issue additional debt within current policy for capital categories only.	M	- Issue an additional $6.7B on top of current $7.3B base planned debt, totaling $14B in new debt over 10 years. This equates to $1.4B in debt service annually or 21% of the FY19 annual budget. Current debt service makes up 6.5% of the annual budget. - Potential rating downgrade resulting in higher borrowing costs (est. $2M to $6M aggregate cost for every $100M issued) - Drop in sales tax revenue may require paying debt service with funds intended for operating the system	$6,700,000,000
Issue additional debt by bonding for capital categories only to the maximum permitted by the Additional Bonds Test (ABT) and assume an ABT of 1.5x for Measure M	H	- Issue an additional $10.8B on top of current $7.3B base planned debt, totaling $18.1B - Estimated $1.7B a year in debt service (26% of FY19 annual budget) or $17B over 10 years - Potential rating downgrade resulting in higher borrowing costs (est. $2M to $6M for every $100M issued) - Maximum leverage removes Metro' ability to borrow to respond to any unforeseen financial event - Decline in sales tax revenue may require paying debt service with funds intended for operating the system	$10,800,000,000
INCREASE REVENUES FROM EXISTING SOURCES			
Fare Revenues			
Increase fares by 10%	L	Low impact to riders; requires public hearing and Board adoption	$302,614,000
Increase fares by 15%	M	Medium impact to riders; requires public hearing and Board adoption	$453,921,000
Increase fares by 20%	H	High impact to riders; requires public hearing and Board adoption	$605,228,000
Increase fares by 25%	H	High impact to riders; requires public hearing and Board adoption	$756,535,000
Advertising			
Expanded Advertising and Corporate Sponsorship	L	Metro Board to reconsider Expand advertising (Digital Bus stops/Billboards) Corporate Sponsorship (rail lines, stations, Special Event Service	$1,000,000,000
Toll Revenues			
Toll revenue from new ExpressLanes (EL) Conservative projected revenues	L	Projected toll revenues, including debt financing, in excess of new EL capital and operating cost. Funding will be used for other projects in the EL network corridor. Projected toll revenues (conservative estimates) are based on increased occupancy requirements and dual lanes. Requires Board approval of Interfund Loan Policy.	$399,000,000
Toll revenue from new ExpressLanes (EL) High projected revenues	H	Projected toll revenues, including debt financing, in excess of new EL capital and operating cost. Funding will be used for other projects in the EL network corridor. Projected toll revenues are based on increased occupancy requirements and dual lanes. Requires Board approval of Interfund Loan Policy.	$798,000,000
Funding			
Multi-Year Subregional Funds by impacted subregions on 8 accelerated projects	M	Total of $846.4M in MM MSP funding over 10 years for the following subregions: Central City, Gateway Cities, South Bay, San Gabriel Valley and Westside (only subregions that have 28 by 2028 projects)	$846,400,000
Local Return funds by impacted cities on 8 accelerated projects	H	- Represents all Local Return (PA, PC, MR, MM); requires agreements with cities - Impacts 27 cities	$2,689,427,629
Require 3% of accelerated costs to be funded by cities' Local Return	H	Seek cooperative agreement with cities to contribute (3% of the Accelerated capital costs of $23.7B) to be funded by cities' impacted. May impact cities' planned projects.	$711,000,000
Increase Federal funding share from 15.4% to 19.2% (FFGA for WPLE3)	M	Assumes federal contribution for WPLE3 increases by $1.3B. Timing and amount of grant award is medium to high risk	$983,200,000
Increase Federal funding share from 15.4% to 22.1% (Expands total New Starts Drawdown across WPLE, WSAB, and Sepulveda)	H	There is limited additional capacity to draw upon for future Federal grant opportunities Assumes applying for New Starts Grants for WSAB & Sepulveda in addition to WPLE3, maximizing the $400M annual drawdown amount through 2027. If the total CIG Program appropriation nationally does not increase, the risk of obtaining the required funds for these two projects, prior to 2028, will be high.	$1,965,700,000
Increase State funding share from 11.8% to 14.5% - across various 2028 projects	M	Since an increase in State funding capacity is unknown, any assumption above 12% State funding contribution presents a risk, unless there is an increase to the overall State's base fund.	$700,400,000
Increase State funding share from 11.8% to 17.9% - across various 2028 projects	H	Additional SB 1 funds - Probability is high risk due to state's future rounds of eligible funds, competitive process, timing and programming	$1,695,500,000
Legislative Strategies			
Increase the percentage of Cap and Trade Funds allocated to public transit	M	Two cap and trade categories allocate funds to transit. Doubling the percentages of those funds and attaching allocation formulas beneficial to Los Angeles would increase funding for capital and operations purposes.	$600,000,000
Reconfigure existing SB 1 programs to generate more funds for Los Angeles County	H	Many of the SB 1 programs are discretionary. Attaching formulas beneficial to Los Angeles would ensure a larger proportion of funds to Los Angeles.	$1,000,000,000

28 x 2028 Strategy Listing

Summary Description	Risk	Comments	10-Yr Estimate
REDUCE EXPENDITURES			
Transit Operations			
Electric bus - conform with state mandate of 2040 rather than 2030	L	The CARB plan requires that all vehicles purchased after January 2029 be electric thereby converting all fleets to electric by 2040. Staggering procurements according to the CARB plan will save $350M.	$350,000,000
Bikeshare Program			
Bikeshare Program	M	Transition/Sell to City of LA The Bikeshare program annual budget for Metro operating costs is $25M. About 65% of that cost is reimbursed by participating cities, resulting in a net savings of $8.75M annually if the program were to be transitioned/sold to City of LA.	$87,500,000
P3 Opportunities			
Explore P3 opportunities	M	Covers possible savings on three potential Metro projects through P3 delivery, from cost efficiencies across construction, O&M, and long-term capital replacement (SGR) West Santa Ana, Sepulveda Transit Corridor, East San Fernando Valley Estimate based on utilizing discount rates of 8% for the construction costs and 14% over the construction/operating period.	$5,100,000,000
GENERATE REVENUES FROM NEW SOURCES			
Legislative Strategies			
Seek to back the creation of a White House Task Force on the 2028 Olympic and Paralympic Summer Games	L	We recommend the creation of a White House Task Force on the 2028 Olympic and Paralympic Games. Similar efforts in the past resulted in the federal government providing $1.4 billion for highway and transit infrastructure projects to support the Olympic Games – 1984 Summer Olympics in Los Angeles, 1996 Summer Olympics in Atlanta, and the 2002 Winter Olympics in Salt Lake City. We recommend that Metro prepare an infrastructure package in the range of $1.5-2 billion that would enhance our highway and transit systems to serve the region during the 2028 Games. When indexing for inflation, this request is consistent with the funds granted to Salt Lake City when it hosted the 2002 Winter Games.	$2,000,000,000
Value Capture			
Value Capture financings (Variety of locations)	M	Taxing districts formed at key location of new LRT lines. Funding used for project costs. Estimated funding amount based on historical value capture financings at a variety of locations.	$93,000,000
Value Capture financings (Desirable locations)	H	Taxing districts formed at key location of new LRT lines. Funding used for project costs. Estimated funding amount based on historical value capture financings at desirable locations.	$370,000,000
Congestion Pricing			
Congestion Pricing - Cordon Pricing	H	Common method of congestion pricing - Creating a boundary around central district and charging vehicles to cross that boundary. Estimates based on downtown LA, $1.2B annually.	$12,000,000,000
Congestion Pricing - VMT Pricing	H	Charging drivers based on Vehicle Miles Traveled (VMT). Most challenging to implement, but most comprehensive and has highest upside in terms of mobility benefits. Estimates based on $10.4B annually.	$103,500,000,000
Congestion Pricing - Corridor Pricing (10 corridors)	H	Price all lanes on all roads within a specific corridor with high traffic congestion but a viable public transit alternative. Travelling within a designated corridor during peak times would pay a fee based on how many miles they travel within the corridor. Estimates based on implementing corridor pricing at 10 corridors at $520M per corridor per year.	$52,000,000,000
New Mobility Fees			
Shared Devices - Fee at $1 per device per day	M	Levy a fee on shared mobility devices (i.e. scooters)	$580,000,000
Levy a fee on TNC - Fee of $0.20	M	Levy a fee on TNC or other new mobility trips originating in Los Angeles County (Fee of $0.20)	$401,000,000
Levy a fee on TNC - Fee at $2.75	H	Levy a fee on TNC or other new mobility trips originating in Los Angeles County (Fee of $2.75)	$5,500,000,000

LOW	$4,051,614,000
MED	$16,545,421,000
HIGH	$65,316,228,000 - $129,075,162,629

Primer on Congestion Pricing

Background and Rationale

The concept of congestion pricing has been around for decades and dates back at least to Nobel Prize winning economist William Vickrey. In the 1940s Dr. Vickrey was among the first economists to note that roads are one of the few goods in society which are provided for free. Simple supply and demand will tell you that when you provide something for free, people use more of it than they would otherwise. Dr. Vickrey theorized that this concept explains why roads are often congested. He and many others since have suggested charging fees for roadway congestion. This means charging higher fees for roadway use when demand is high and lower or zero fees when demand is low, a concept known as congestion pricing.

Admittedly, roads are not actually provided free of charge. We all pay taxes that are used to build and maintain the roads. However, with the exception of toll roads (which represent a very small percentage of miles driven in the U.S.) people pay zero out-of-pocket costs for their direct road usage. More critically, the price of a road (usually zero) bears no relationship to demand for that road at that time. For example, it costs the same to use a road at 3am as it does in the peak of rush hour traffic, even though demand for roads is much lower at 3am.

This type of pricing structure is rarely applied to other goods. For example, you would not expect to pay the same price for the same seat at Dodger Stadium during the World Series as you would during pre-season. If these two items were priced the same, either they would be too expensive and few people would go to a regular game, or they would be too cheap and the World Series tickets would be given to whoever could get in line to buy them first. Yet this is how we allocate roadway space every day – it is vastly underpriced, demand exceeds supply, and whoever gets there first gets the space. This is why people will leave their houses earlier and earlier in the morning to avoid traffic.

The net effect is that instead of paying for roadway space with money, we all pay with our time. We waste our time sitting in traffic, essentially waiting in line, to use roads. This vastly inefficient method of allocating roadway space may seem very democratic, in the sense that all must pay with their time. However, it actually discriminates against the poorest and most vulnerable members of society. Transit riders, who have far lower incomes than non-riders in Los Angeles County, use buses that sit in that same slow traffic. Moreover, low-income people typically have less flexible work schedules with hourly wages and face severe penalties for lateness. Whereas higher-income individuals may be able to shift their travel times or work from home to avoid congested periods, lower-income people often cannot. Low-income people typically cannot afford the most fuel-efficient vehicles, so they spend a greater proportion of their income on gas when stuck in traffic. And finally, this unnecessary traffic creates greater emissions and pollution, and low-income individuals typically inhabit the areas with the poorest air quality.

When implemented effectively, congestion pricing can represent a significant improvement in equity. If the proceeds from roadway pricing are used to subsidize increased or improved transit service, or low

income fare programs, congestion pricing becomes a massive wealth transfer from rich to poor wherein both groups benefit from travel times improvements.

Implementation

Congestion pricing has proven challenging to implement for a number of reasons. First, charging people for something that has previously been given away for free is never a politically popular idea. Second, there are technical and privacy challenges with respect to charging people based on where and when they drive. Third, there is the perception that charging for roads is inequitable and discriminates against lower-income individuals who will not be able to afford to pay the charge. Despite these challenges, several metropolitan areas have implemented various forms of congestion pricing. Once implemented, these schemes have had various degrees of success but, notably, none have ever been repealed. This includes the only congestion pricing pilot of any kind implemented to date in Los Angeles County, Metro's Express Lanes program.

Congestion Pricing Models and Revenue Forecasts

More comprehensive congestion pricing schemes are currently in place in London, Stockholm, Singapore, and Milan. Each of these experiences offers lessons learned, but perhaps most notable is Stockholm. In this city, the congestion pricing scheme was widely opposed and was put in place on a pilot basis. After the trial period, the scheme proved so popular that it was accepted permanently. This demonstrates the value of a pilot period to test such a product, and to demonstrate its value, before casting judgment.

In Los Angeles, there are three conceivable ways congestion pricing could be implemented. These are the following:

1) *Cordon Pricing*. This is the type of scheme often proposed for New York City, and implemented in all four cities above. It involves creating a boundary around a central district and then charging vehicles to cross that boundary. The fee can be variable, meaning it can go up or down based on demand. Alternatively it could be set at a specific rate for peak versus off-peak times. Either way, the idea is to reduce the number of vehicles entering a central area when demand is higher. This is the most common method of congestion pricing employed around the world.

   Cordon pricing is most effective when there is a strong Central Business District (CBD) with high quality mass transit options as alternatives to driving. Los Angeles County does not have a typical CBD, as job centers are dispersed throughout the region. This makes cordon pricing more of a challenge here. However, previous studies have been conducted that looks at cordon pricing in downtown Los Angeles and the Westside. Preliminary average revenues from cordon pricing of all trips entering downtown LA have been estimated to be as high as $1.2 billion per year (in year of expenditure dollars). In theory, cordon pricing could be piloted in one area of Los Angeles County and then expanded to other job centers if it proves popular. State legislation is pending that would allow such a pilot. This form of pricing is among the easiest to implement and has the most history to learn from.

2) *VMT Pricing*. Charging drivers based on Vehicle Miles Traveled (VMT) has been floated for many years as a potential substitute for a gas tax. However, a VMT fee platform can potentially be used to charge variable prices based on location and time of day. There have been VMT-fee experiments in California, Oregon, and Iowa. While none of these pilots have attempted to include additional fees for congestion, the Oregon pilot tested the idea by calculating the number of miles driven in the "congestion zone". In short, the technology exists to use VMT as a method of alleviating congestion but it has not yet been attempted due to political challenges.

   VMT pricing would be easier to implement in LA County if it were first put in place at the state level. With a state level program charging based on VMT in place, LA Metro could layer on a fee based on congestion by time of day. In theory variable rates could be put in place to also encourage fuel-efficiency and vehicle occupancy. Without a state program in place, Metro would need to at least seek state authorization to pilot a VMT program. This form of pricing is the most challenging to implement, but also the most comprehensive and has the highest upside in terms of mobility benefits. Preliminary average annual revenues from implementing VMT pricing have been estimated at $10.35 billion per year (in year of expenditure dollars) for the larger metropolitan area. While net revenues from Los Angeles County alone would be less, Los Angeles County is the most populous part of the region and accounts for more VMT than the rest of the region. This estimate provides a sense of the strong revenue potential of such a scheme.

3) *Corridor Pricing*. Corridor pricing is a new kind of congestion pricing that has not been implemented anywhere. The idea is to price all lanes on all roads within a specific corridor with high traffic congestion but a viable public transit alternative. Functioning similar to cordon pricing, anyone traveling within a designated corridor during peak times would pay a fee based on how many miles they travel within the corridor. The price for travel within the corridor would be set high enough to ensure free flow traffic within that entire corridor.

   This idea would be more feasible and appropriate for Los Angeles because the County has a series of congested corridors. Metro could select a specific corridor, such as a 1-2 mile area surrounding the 101 near the Red Line or the 10 corridor near the Expo Line, as a pilot program. We could offer the Red or Expo Line as transit alternatives but also run frequent express and local buses within the corridor and provide discounts for higher occupancy vehicles in order to offer numerous alternatives to driving alone. Drivers within the corridor would enjoy faster trips as would transit users. If successful, such a pilot could generate enthusiasm for further implementation elsewhere in the County.

Review of Finances and Performance of Existing Congestion Charging Programs

Congestion Pricing Programs: Cost and Revenue Estimates

City/Program	Status	Initial Investment	Annual Operating Costs	Annual Net Revenue	Efficiency (Costs/Revenue)
Oslo, Norway	*active*	USD $30M	USD $11M	USD $70M	16%
Singapore	*active*	USD $145M	USD $25M	USD $110M	23%
London, UK	*active*	USD $211M	USD $170M	USD $179M	95%
Stockholm, Sweden	*active*	USD $222M	USD $12M	USD $144M	8%
Dubai, UAE	*active*	n/a	n/a	USD $217M	n/a
Milan, Italy	*active*	€7M	€7M	€29.4M	24%
Gothemberg, Sweden	*active*	USD $84M	USD $12M	USD $89M	13%
San Francisco, USA	*active*	$56.3M	$944M	$1.3B	72%
Singapore	***active***	S $6.6M	S $5M	S $47M	11%
Manchester, UK	*proposed*	$195M	$55M	$140M	39%
Netherlands	*proposed*	n/a	n/a	n/a	n/a
New York City, USA - Variable Price	*proposed*	$265M	$150M		9%
New York City, USA - Variable Tolls	*proposed*	$282M	$110M	$2.2B	5%

Sources available upon request

UCLA quickly analyzed eight active congestion programs. In each case, the program examined runs in the black and generates surplus revenue. Across the eight programs, the operating cost-to-revenue ratio averaged 36 percent, suggesting that program revenues substantially exceed costs.

Two proposed programs that are not yet in operation also show favorable cost-to-revenue ratios. Manchester, England's proposal has an estimated cost-to-revenue ratio of 39 percent, while the proposed New York cordon tolling scheme is estimated to have costs that are only 9 percent of revenues.

Absolute revenues vary greatly, largely because the tolled areas vary considerably in their size and the demand for the road space they allocate. The London Congestion Charge, despite having very low revenue margins, nevertheless raises tremendous net revenue absolutely (about US $179 million annually) because access to central London is so valuable. Stockholm, conversely, is remarkably efficient compared to London (with costs being only 8 percent of revenues) but nevertheless brings in less net revenue absolutely (about US $144 million). Keep in mind that both of these charges are for central areas that are very small relative to the size of the entire metropolitan area. In Los Angeles, where there are many more drivers and a much larger area to cover, revenues could be much higher.

Case Studies

Singapore

Singapore has the longest established and perhaps most fully realized road pricing system. In 1974, the government conducted a year-long assessment and education program prior to launching a cordon price scheme known as Area Licensing Scheme (ALS) in 1975. Drivers entering a cordon in the downtown area of Singapore were required to purchase a license in advance and display it on the windshield. Singapore also simultaneously doubled parking fees in the downtown area and implemented parking cordon license enforcement. This resulted in an approximately 20% reduction in congestion levels. The annual

growth rates of vehicles entering the inner city per day dropped from 6% to 4%. Further, the program earned widespread citizen support.

In 1998, due to advancement in technology, Singapore replaced ALS with Electronic Road Pricing (ERP) scheme. Vehicles were required to have an In-Vehicle Unit (IU) on the dashboard and a smart card with fare stored in it. ERP gateways and gantries detected the type of vehicle and the real time congestion of the route and charged the vehicle based on road conditions. Charges were between $0-$3 USD. Larger vehicles are priced higher because they take up more space.

The goal of the ERP scheme is to keep the roads moving at desired speeds set by the Land Transportation Authority (LTA). Singapore simultaneously increased parking fees inside the restriction zone, increased the number and frequency of bus service, allowed for HOV+4 lanes, and created 15,000 park and ride spaces. The results of this program were significant. In 1998 when ERP was launched, Singapore's population was 3.9 million, with 235,000 vehicles entering the inner city daily. While the population grew by 44% in 2016 to 5.6 million, only 300,400 vehicles entered the inner city daily. Further, traffic was reduced in the inner city by 24% and average speeds increased from 18-22mph to 24-28 mph. Bus and train ridership increased by 15%. CO2 and other greenhouse gas emissions were reduced by 10-15% within the inner city. Singapore has an annual net revenue of $110M from the program. Revenues from the ERP program are earmarked for public transit, street safety, and transit oriented development.

In 2020, Singapore's LTA is moving from the ERP system to a Global Navigation Satellite System (GNSS), which is considered the next generation in technology. Due to the prohibitive costs required to upgrade and install new gantries, Singapore chose a technology that doesn't rely on overhead gantries. In-Vehicle Units will be replaced with On-Board Units (OBU) to support value-added services like automatic payment for off-peak usage, electronic payment for roadside parking, and electronic payment for checkpoint tolls. Singapore's goals with GNSS are to make the system even more targeted, flexible, and equitable.[1]

London

Since the 1960s, London had experienced decades of congestion due to increasing population and its complexity of streets. Led by the newly elected mayor, Ken Livingstone, who had made congestion pricing one of his main campaign promises, Transport for London (TfL) launched a cordon pricing scheme in 2003. The zone included the area inside London's Inner Ring Road, a route comprising main roads encircling the inner city. The system is a fully automatic fee payment system that utilizes number place recognition. Vehicles are registered automatically by cameras that take pictures of the license plates. This is achieved by utilizing overhead gantries, cameras at all entrance points of the zone,

[1] See "Road Pricing In London, Stockholm and Singapore: A Way Forward For New York City," *Tri-State Transportation Campaign*. Jan. 2018; "Electronic Road Pricing: Experience & Lessons from Singapore," *Prof. Gopinath Menon, Dr. Sarath Guttikunda*. 2010; "Lessons Learned from International Experience in Congestion Pricing," Federal Highway Administration. 2008.

pavement markings, and street signage. Drivers can make payments via telephone, text message, online, mail, or auto-pay. Drivers are fined if they do not submit payment.

The goals of the program are to reduce congestion, improve bus service, and improve trip reliability. In addition to congestion pricing scheme, TfL simultaneously made public transit improvements, increased enforcement of parking and traffic regulations, increased bus service and frequency, and provided more than 8,500 park and ride spaces.

Since launch in 2003, London has seen a 30% reduction in traffic congestion, an increase in average speed by 30%, and significant increased in travel time reliability. Bus service increased by 23% and reliability and journey time improved. Bus ridership increased by 38%. Of the thousands of car trips once made to the cordon zone, 50% shifted to public transit, roughly 25% were diverted to outside the cordon area, and the rest attributed to carpooling, walking, or biking. Further, CO2 emissions declined by 16%. London has annual net revenue of $179M; however, TfL faces extremely high operating costs.[2]

Stockholm

In 2003, in response to growing traffic congestion in the inner city, Stockholm's City Council voted to test congestion charge trials. In 2004, the Swedish Parliament approved a congestion pricing pilot program. This is despite incredibly low public support for the pilot—roughly 80% of residences opposed the program. Stockholm launched congestion pricing with a phased approach. The first phase saw an expansion of public transit, including 197 new buses and 16 new bus routes, as well as an expansion of existing service hours. The second phase consisted of 2,800 new park and ride facilities to allow for customers to drive to the edge of the cordon and then take transit into the center. The third phase was the actual implementation of the congestion charge, in which vehicle owners were required to pay USD $3 for driving into or out of the Stockholm inner city.

The Stockholm Transport Administration, together with the Transportation Board, manages the program. The overhead gantry technology and cameras at all cordon entrance points allow for a fully automatic fee payment system. Owners are sent monthly invoices for the total tax incurred from the month of driving. This can be paid via mail, direct debit, or electronically.

After only a few weeks of operation, traffic around the cordon decreased to 22%, down from 30-50%. Travel time reliability increased, and transit use increased by 4-5%. Public opinion on the congestion program changed, and the media characterized the service more positively. In fact, Stockholm constituent's voted to make the congestion pricing trial permanent through a referendum. In 2007, Stockholm launched the permanent pricing system. In 2016, variable pricing was added by time of day. This led to an additional 5% decrease in traffic congestion. Updates to the pricing scheme have been made over time to keep up with the changes in traffic patterns. Currently, travel across the cordon during peak periods cost as much as USD $4.14. In addition to reduction in traffic, the area has seen a

[2] See "Road Pricing In London, Stockholm and Singapore: A Way Forward For New York City," *Tri-State Transportation Campaign*. Jan. 2018; "Congestion Pricing Impacts Monitoring: Sixth Annual Report," Transport for London. 2008; and "Lessons Learned from International Experience in Congestion Pricing," Federal Highway Administration. 2008.

reduction of 14% in CO2, and GHG is down by 2.5%. Net revenues from the program are USD $144M annually.

Conclusions

Congestion pricing offers a powerful mobility solution that faces substantial barriers to implementation, but once implemented, tends to prove highly popular while generating substantial revenues that can be used for transit. This suggests that testing one or more congestion pricing ideas in Los Angeles County will be required in order to demonstrate the benefits and win over the public. This is why the Board agreed to look into the feasibility on Congestion Pricing in the Metro Strategic Plan, Vision 2028. It will take substantial political courage to even get a pilot program in place. But if successful, and if the revenues are used effectively, there is substantial evidence that this would be a better mobility initiative than anything else we could possibly undertake. Benefits of these programs are not limited to only revenue generation, but also in their proven ability to reduce delay, crashes and air pollution--consequences not easily monetized but unique and by most estimates very large.

Primer on New Mobility Fees

Background and Justification

Technological innovation is changing the ways that consumers access goods and services. Most dramatic has been the rise of transportation network companies (TNCs), such as Uber and Lyft, which has enabled new and better demand-responsive travel options for many people. But these private companies are in the business of profiting from public investments in roads and infrastructure that enable their success. Moreover, recent research has also shown that these on-demand transportation services, often known as ridehailing services, exacerbate congestion and pollution, and typically operate under different rules than other similar providers such as taxi services.[1]

Meanwhile, other new "shared" services have appeared with similar business models. Private companies have put shared bicycles, scooters, and cars on the streets with the expectation of using public rights of way to generate private benefit. In response to these new services, 7 major cities and 12 states have started levying fees or taxes on TNC trips to serve a variety of purposes, including revenue generation, congestion management, parity of compliance, and transportation equity.[2] Other cities have put in specific regulations to cap or regulate new mobility providers.

New Mobility Fees

While no city or region has yet to attempt to charge all private new mobility providers collectively, several have instituted fees on TNCs. The most common ways to tax TNCs are to charge a flat per-ride fee or to collect a percentage of the total fare revenue of a TNC on a regular basis. While these are the basic approaches, there are many innovative ways to leverage these approaches to support the policy goals of Metro. For example, utilizing a tiered tax approach can encourage preferred travel behaviors, such as lower fees for shared rides or fuel-efficient vehicles, and higher fees for rides that originate or end in congested areas. This type of pricing could extend to other new mobility services. For example, reduced or waived fees could be used as a mechanism to encourage services to underserved areas of the County, such as low-income neighborhoods that often do not receive services such as shared scooters or bicycles.

[1] See "Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States," by Regina R. Clewlow and Gouri Shankar Mishra, Institute of Transportation Studies, UC Davis, Oct. 2017.
[2] See "Taxing New Mobility Services: What's Right? What's Next," by So Jung Kim and Robert Puentes. Eno Center for Transportation. July 23, 2018

Potential Policy Objectives

1) Generate revenue for investment in transit and infrastructure

Taxes and fees are common tools used to raise revenue for public goods and services. Levying a fee on TNC or other new mobility trips originating in Los Angeles County serves as a potential revenue opportunity for Metro to then reinvest in public transit and infrastructure. For example, Chicago requires a per-ride charge from TNC passengers. As of Nov. 2017, the fee was $0.67 per ride. Fees were expected to raise $16 million for CTA in 2018, and $30 million in 2019 due to an increase by $.05. The revenue has been earmarked for specific, long-deferred maintenance on the rail system including upgrades to the track, structure, signal, and power systems, providing total trip time savings of 2-6 minutes.[3]

2) Manage congestion through influencing supply and demand

Congestion in LA County is prevalent throughout the day and occurs on arterial streets, as well as on regional highways. Research findings have shown that TNCs contribute to increases in vehicle miles traveled (VMT).[4] Fees for TNC trips are a form of pricing that could effectively manage demand in the most traffic-clogged areas of the County, to ensure that customers prioritize shared rides over single passenger rides, or even to incentivize a substitution to transit use instead. For example, New York City (which has a roughly similar population to Los Angeles County) taxes the total fare revenue of large TNCs (defined as high-volume for-hire services dispatching more than 10k a day in the city) at 8.875%. Additionally, beginning in 2019, New York City will impose a $2.75 flat surcharge for each trip beginning, ending, or entering a congestion zone by a for-hire vehicle. For the purposes of the surcharge, the congestion zone is the area of New York City, in the borough of Manhattan, south of and excluding 96th street. For pooled vehicles, the surcharge is imposed at a lower rate of $.75 per each person that enters and exits. New York City estimates this will bring $400 million per year to the Metropolitan Transportation Authority (MTA), and earmarked the funding for MTA's Subway Action Plan that addresses deferred maintenance on the subway.

3) Bring the new mobility industry into regulation

Instituting fees on TNCs can serve as the beginning of a more comprehensive regulatory plan to set the rules of engagement for private new mobility providers. Most of the new fee requirements instituted by cities and states have been included with other regulatory requirements, such as insurance minimums and data reporting. Additionally, proponents of

[3] So Jung Kim and Robert Puentes,"Taxing New Mobility Services: What's Right? What's Next," Eno Center for Transportation. July 23, 2018

[4] Regina R. Clewlow and Gouri Shankar Mishra, "Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States," Institute of Transportation Studies, UC Davis, Oct. 2017.

taxing new mobility services argue that it creates parity with existing taxi regulations and levels the playing field for competition.

The City of Santa Monica established an electric scooter pilot program in 2018. In addition to capping the total number of devices to 3,500, the city also charges an annual base operator fee of $20,000, plus an annual device charge of $130 per device.[5] Additionally, the City Council voted to enact a public land use fee for the right to use public land for commercial activities. Scooter companies are charged a $1.00 per device, per day fee, and Santa Monica estimates monthly revenues of $89,000, earmarked for improvements such as expanding sidewalks, green lanes, making walking, biking, scooter riding, and moving around Santa Monica easier and safer.[6]

4) Support programs that improve transportation equity

Taxes or fees on TNC trips can help improve transportation equity by either influencing behavior directly or by putting revenues towards supporting programs with similar goals. For example, the California Public Utilities Commission (CPUC) regulates TNCs in the state of California. CPUC collects a .33% tax on total fare revenue, and earmarks this towards the administrative costs of regulating TNCs. Governor Brown recently signed SB1376 into law, requiring the CPUC to assess at least $.05 per TNC ride to help pay for wheelchair accessible vehicles (WAVs) and for groups to advance the deployment of WAVs.

Estimated Revenue Potential from TNCs

The exact number of rides provided by all ridehailing services in Los Angeles County is unknown because these private companies are very protective of their data. However, we know that in 2016 Lyft averaged 70,000 rides a day in Los Angeles County, with about 20% market share.[7] These trips cost $9.66 on average.[8] We can therefore estimate that the entire ridehailing market provided roughly 350,000 rides a day in LA County in 2016 numbers, and know that both Lyft and Uber have continued to increase in popularity since then. This estimate is supported by TNC ridership from other cities/regions. The city of Boston had 96,000 TNC rides

[5] "Scooter and Bike Share Services" by City of Santa Monica Planning & Community Development. https://www.smgov.net/Departments/PCD/Transportation/Shared-Mobility-Services/. Access on Nov. 20, 2018

[6] "Santa Monica City Council Clarifies Rules for Electric Devices on the Beach Bike Path and Approves Public Right of Way," City of Santa Monica. August 29, 2018.

[7] Brown, Anne Elizabeth. "Ridehail revolution: Ridehail Travel and Equity in Los Angeles," Institute for Transportation Studies, UCLA, Jan. 2018.

[8] Ibid.

per day in 2017.[9] King County Metro, with a population of 2.1M people, had 91,000 rides a day from Uber and Lyft in 2018.[10]

Flat per-ride charge.

To estimate what kind of revenue can be generated utilizing a flat per-ride charge, we looked at the range of per-ride fees. Massachusetts charges the lowest per-ride fee per trip at $0.20 and NYC charges the highest at $2.75 per trip. Using our estimate of 350,000 daily ridehailing trips in 2016, that amounts to revenues between $70,000 to $962,500 per day, or between approximately $25M to $350M annually. If we assume increasing numbers of TNC rides since 2016, the range increases considerably. See table below for estimates.

TNC Rides	Fee of $0.20	Fee of $2.75	Low Range Annual Revenue	High Range Annual Revenue
350000	$ 70,000	$ 962,500	$ 25,550,000	$ 351,312,500
450000	$ 90,000	$ 1,237,500	$ 32,850,000	$ 451,687,500
550000	$ 110,000	$ 1,512,500	$ 40,150,000	$ 552,062,500

A flat per-ride charge is not the optimal way to charge TNCs. A more flexible charge that helps to achieve the mobility and equity goals of Metro and the County is preferred. However, such a charge would not necessarily change the revenue range estimates.

Estimated Revenue from Shared Devices

The exact number of shared mobility devices in LA County, such as e-scooters and e-bikes, is even more challenging to estimate than number of TNCs due to the relatively recent emergence of these devices. However, based on the City of Santa Monica's new pilot programs, we can make some rough estimates.

Santa Monica's City Council approved a public land use fee for bike and scooter companies. The City will charge scooter companies a fee of $1.00 per device, per day for the right to use public land for commercial activities. Santa Monica estimates revenue of $1.07M/annually.[11] The rest of Los Angeles County is not as conducive to bicycles and scooters as Santa Monica. However, even if we estimate only half as much demand for scooters and bikes in the rest of Los Angeles County, annual revenues could still be as high as **$58M** annually from scooters and bikes. This is a very rough estimate based on very little data.

[9] "Rideshare in Massachusetts: 2017 Data Report." By Department of Public Utilities. Accessed Nov. 2018.
[10] Gutman, David. "How popular are Uber and Lyft in Seattle? Ridership numbers kept secret until recently give us a clue," The Seattle Times. Nov. 5, 2018.
[11] Catanzaro, Sam. "City Council to Consider Public Right of Way Fee For Scooter Companies," Santa Monica Daily Mirror. August 24, 2018.

Conclusions

New mobility services have both positive and negative impacts. Any decision to enact a tax or fee should consider how it will affect travel behaviors, and should be made with consideration towards the goals outlined in Vision 2028. This is an opportunity to strategically shape and influence travel behavior in the public interest. New Mobility fees should be considered one component of a comprehensive pricing strategy around managing travel demand, in concert with congestion pricing.

A tiered tax allows for Metro to reward pooled riders or bicycle/scooter trips and includes policy safeguards for equity provision of service, congestion-like pricing, and a market-based approach. Taxes on new mobility services can go beyond raising revenue and can work towards improving the quality of life for LA County residents. Any mechanism for taxing these new mobility trips should be used in carefully targeted ways to designed to reduce single-occupancy vehicle use while improving equity and mobility.