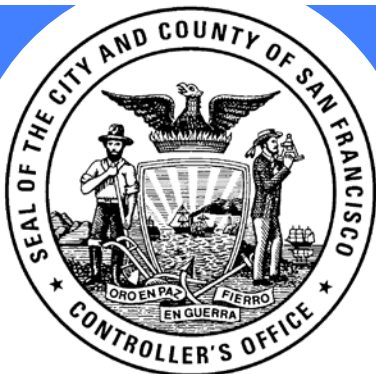


San Francisco MUNI Reliability Working Group

Co-Chairs: Gwyneth Borden, Ed Harrington



CITY & COUNTY OF SAN FRANCISCO

January 10, 2020

The people of San Francisco believe in a transit first policy for the City and rely heavily on Muni to provide that transit service. They have been generous in supporting proposals to fund Muni. In return they want and deserve a well-functioning, reliable system.

Muni does some things very well and is the envy of other transit agencies for its public support, service levels and system and route distribution. At the same time, Muni must and can do better.

With that in mind, the **Muni Reliability Working Group** was formed and offers the following recommendations:

Staffing

- Accelerate operator hiring and training so that Muni achieves its goal of stabilizing current service levels by Summer 2021. With attrition and training Muni must graduate approximately 525 new Transit Operators by that date.
- Create an SFMTA and citywide effort by June 2020 to organize and right-size the transit supervision workforce and remove roadblocks to structuring the work and onboarding staff.
- Create an SFMTA and citywide program by June 2020 to reduce the significant vacancy rates in maintenance, crafts & engineering classes.
- Explore developing regional and industry coordination efforts for training, certification, apprenticeship and career ladders in the skilled trades that are needed by the SFMTA.

Systems and Vehicles

- Improve long-term subway performance by replacing the system's train control system.
- Finalize a package of interim subway service solutions by June 2020 to improve subway performance over the next two years.
- Develop a comprehensive approach and schedule to accelerate replacement of the Breda fleet, optimize use of the Siemens fleet, and ensure that the fleet can meet subway performance requirements.
- Support congestion management strategies, including pricing alternatives, and accelerate planned redesign of streets and proactive street management to improve transit system performance.

Communications

- The SFMTA should explore new concepts, organizational structures and practices to grow and improve the Agency's customer experience and communications functions.
- Improve Operator communications and feedback loops related to service conditions.

Major Capital Program Management

- The Bay Area must work together to develop and take new pro-active measures to grow local and regional capacity for planning, funding, building and integrating major transit projects and systems. San Francisco should be a leader in this effort.

Safety

- The SFMTA should make investments to improve safety for riders and employees and security for its facilities and fleet.

Policy

- Engage with leadership and stakeholders to affirm and act on Transit First, Muni Forward and Vision Zero as the City's primary mandates in the street environment.

Governance

- Develop the City's ability to speak with one voice on regional issues and funding priorities. This requires new methods of coordination among the SFMTA, Board of Supervisors, Mayor's Office and other agencies.

Future

- After current service is stabilized, develop and fund Muni plans for growth. Service expansions and new revenue sources are needed to address equity gaps, crowding and population in San Francisco and regionally.
- Improve coordination and increase capacity between specific functional areas and divisions including street management and parking control, and capital planning and transit.



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Working Group Participants

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Sponsors: Mayor London Breed, Supervisor Rafael Mandelman & Supervisor Aaron Peskin

Committee Co-Chair

Gwyneth Borden

Ed Harrington

Affiliation

SFMTA Board of Directors, Vice-Chair

General Manager of SFPUC (former) & Controller (former)

Committee Member

Cat Carter

Queena Chen

James Gallagher

Terrence Hall

Mike Hursh

Alicia John-Baptiste

Kathleen Kelly

Roger Marengo

Beverly Scott

San Francisco Transit Riders

Chinatown Transportation Research and Improvement Project

LA Metro

TWU Local 250A

AC Transit (SFMTA formerly)

SPUR

Transportation expert (SFMTA formerly)

TWU Local 250A

Transportation expert

Additional Interagency Support



Working Group Formation and Process

- The working group was convened in June 2019 with sponsorship from the Mayor and Board of Supervisors' Members Aaron Peskin and Rafael Mandelman.
- Co-chairs were San Francisco Municipal Transportation Agency (SFMTA) Board Vice Chair Gwyneth Borden and former Public Utilities Commission General Manager and Controller Ed Harrington.
- Local and national transit experts, San Francisco advocacy organizations and labor leaders served on the working group, participated in subcommittee work, and made site visits to provide technical advice and expertise to SFMTA.
- The group as a whole met five times between July and December. Four subcommittees were formed and met frequently during the period. These were: Technical and Operations, Workforce and Hiring, Context and Regional, Governance and Organizational.
- Research, analysis and other support was provided by SFMTA and by the Controller's City Performance group.
- The San Francisco County Transportation Authority (SFCTA) and the City's Human Resources Department participated in subcommittee work and provided significant technical support to the working group.

Questions Considered by the Working Group

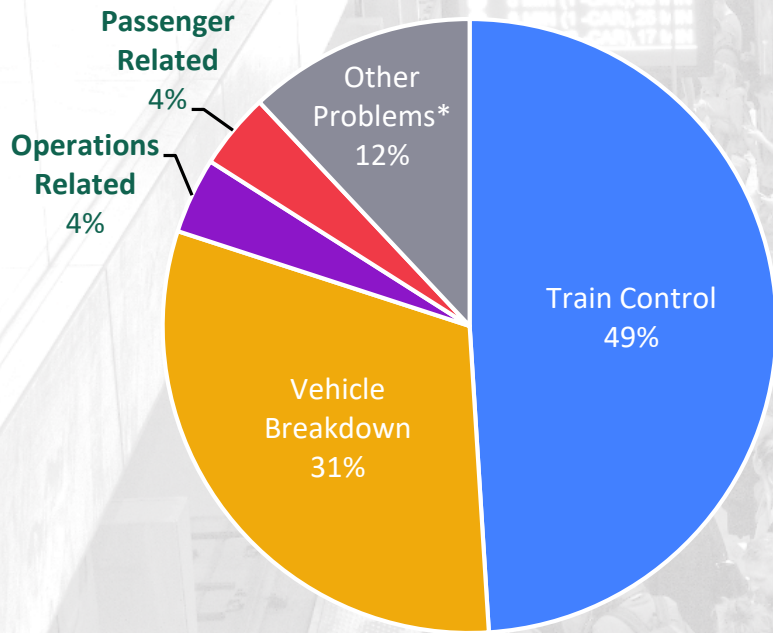
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- The summary charge to the group was to review SFMTA's transit operations and the Agency's current improvement efforts, reach a shared understanding of where Muni needs support, and recommend priority actions for policymakers, SFMTA and a new SFMTA Director over the next 18-24 month period. The group developed the questions below to unify its work across the different committees.
- What resources and support are needed for SFMTA to be able to:
 - Meet reliability and performance mandates
 - Meet customer expectations
 - Serve equity needs
 - Serve projected growth
- How can we improve subway performance?
- How can we optimize bus system performance?
- What can we do to address congestion?
- How can we most improve customer experience?

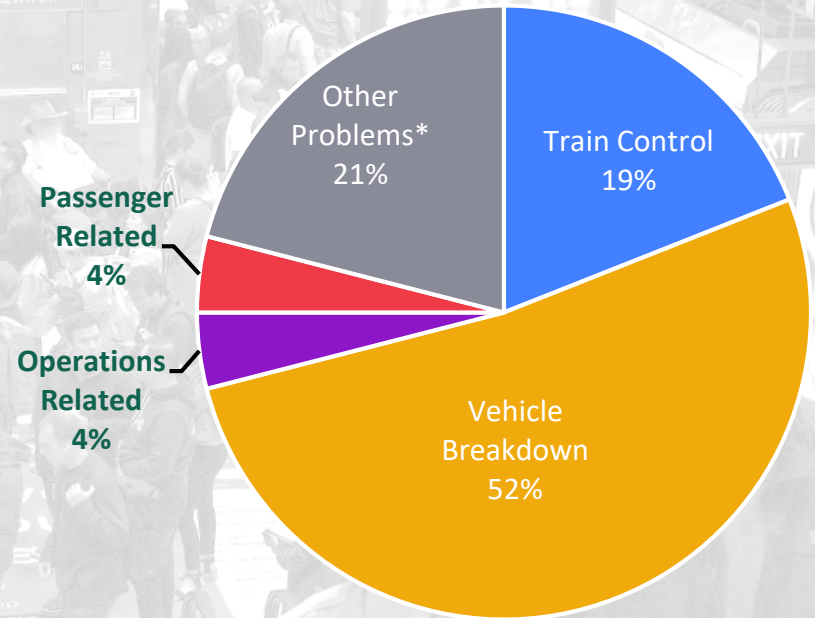
- Addressing operator hiring and other work force issues will have the single biggest impact on overall Muni service performance. Hiring should be complemented by investing in staff training and enhanced service design.
- Local and national trends such as the rise of Transportation Network Companies, new mobility methods, rising congestion, historically low unemployment, and increasing demand all impact the SFMTA's ability to deliver reliable service.
- Muni service also faces structural system challenges, especially in the subway. The lack of bypass tracks and other design features limit the volume of trains and passengers that can be served by the rail system.
- Subway reliability is impacted by an aging train-control system and frequent vehicle breakdowns. Daily subway service is also congested as a result of scheduling more trains than the current train control system can support.
- SFMTA has taken effective steps to address bus reliability through fleet replacement, an increased focus on preventive maintenance, staff training and a full midlife overhaul program.
- Investments in delay reduction, captured by the Muni Forward program, have had a positive impact on the system but remain insufficient to address the dramatic increase in congestion over the past decade.

Sources of Acute Subway Delays

Delays by Quantity



Delays by Impact (minutes)



Source: Muni Central Control Log
January to December 2018

*Other problems include wayside infrastructure failures plus delays that were uncategorized in the control log. These figures do not include delay due to congestion, only the acute delay associated with each incident.

1. Improve long-term subway performance by replacing the system's train control system.

- a. Negotiate a service contract with the current Automatic Train Control System provider. Begin with a five-year term and include extension options.
- b. The service contract must emphasize and require on-site personnel focusing on periods of high demand, setting guaranteed response times and including incentives for minimizing failures and slowdowns.
- c. Expedite plans to procure, fund, and implement a new communications based train control system. Issue a request for proposals by June 2020.
- d. The new train control system and contract must be structured to include maintenance/upgrade cycles spanning the full lifetime of the system.
- e. Tap peer agencies and experts to understand the best train control practices and optimum technologies for investment.

- 2. Finalize a package of interim subway service solutions by June 2020 to improve subway performance over the next two years.**
 - a. Complete a rapid review of operational and infrastructure requirements to reduce subway congestion. Consider any and all service changes that could improve subway performance – these should include longer trains, fewer trains entering the subway, and peak period shuttles.
 - b. Analysis identified surface bottlenecks that contribute to subway delays. These should be addressed concurrent to subway efforts. Locations include St. Francis Circle, 4th/King, as well as the subway portals – West Portal, Folsom and Church/Duboce.
 - c. Continue existing efforts to reduce subway delays including streamlining turnback operations at Embarcadero and assigning field personnel at key subway locations.
 - d. Increase line management training at Transportation Management Center with emphases on reducing bunching and actively informing customers.

- 3. Develop a comprehensive approach and schedule to accelerate replacement of the Breda fleet, optimize use of the Siemens fleet, and ensure that the fleet can meet subway performance requirements.**
 - a. Prioritize replacement of the Breda Light Rail Vehicles (LRV)s as quickly as possible.
 - b. Once a sufficient number of replacement vehicles are in service, limit Breda LRV vehicle deployment to lines that present less risk of delays due to breakdowns. Position units to rapidly respond where Breda LRVs operate.
 - c. Deploy the most reliable vehicles to prevent breakdowns, even if this results in fewer cars on some lines. This may require schedule adjustments.
 - d. Pursue ways to streamline parts procurements and meaningfully incorporate lifecycle/sustainability and resilience factors into evaluations.
 - e. Continue to pursue the 25K mean distance between failures goal for the Siemens fleet. Incremental milestones show that LRV4s are performing better than the Breda fleet and progress in this area is significant.

4. Increase service reliability through systemwide support for maintenance functions and the maintenance workforce

- a. Examine maintenance needs and challenges, including skills, education, training partnerships/apprenticeships, competitiveness of compensation, and vacancies/retirement projections. Identify opportunities to ramp up internally or to outsource training (see Workforce & Hiring section)
- b. Elevate maintenance and fleet staffing as a clear priority in annual budgeting, performance monitoring and progress reporting. Take corrective measures, as warranted (see Workforce & Hiring section).
- c. Increase quality assurance resources for rail, with the goal of creating a more preventive vs corrective culture and greater standardization.
- d. Schedule a quarterly extended maintenance window to address maintenance needs and infrastructure replacements such as new switch machines that require longer hours to complete.

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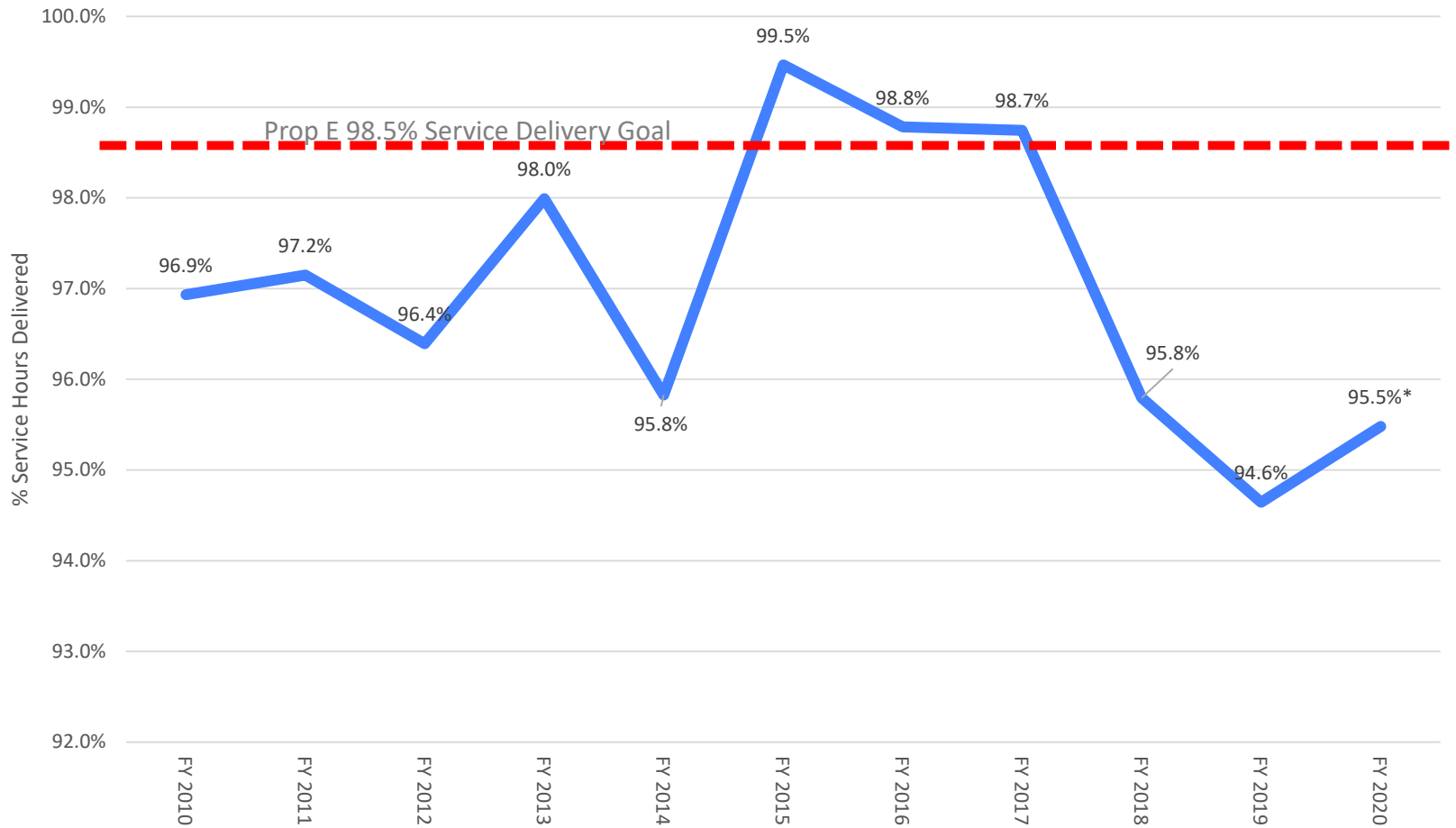


Workforce and Hiring Committee Findings

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- The Transit Operator shortage has the single most critical effect on Muni reliability. The SFMTA, with support from other City agencies and leadership, must execute every element of the plan to hire, train and fill positions to close this gap.
- Given the high percentage of Operators with less than five years of driving experience, increased and sustained investment is needed in training and mentoring of current staff.
- Transit Supervisor and related classifications in the SFMTA have a current vacancy rates of up to 17% and existing positions are insufficient to address increasing system complexity and to deliver the full potential of service management technology.
- Maintenance classifications in the SFMTA have vacancy rates between 20% and 45% and the SFMTA has insufficient recruitment, apprenticeship and training programs.
- Skilled trade and engineering workers are in short supply throughout the Bay Area with many employers competing for a limited pool. Larger solutions are needed in this area.
- Security challenges impact safety and reliability throughout the system and affect the experience of Muni riders and staff. There is a need for enhanced staffing and other measures to improve security.

Service Impacted by Operator Shortage



* FY 20 Complete fiscal year not included. Service delivery calculated between 7/1/2019 and 10/15/2019

5. Accelerate operator hiring and training so that Muni achieves its goal of stabilizing current service levels by Summer 2021. With attrition and training Muni must graduate approximately 525 new Transit Operators by that date.

- a. Marshall citywide support to help SFMTA execute on its Transit Operator hiring plans. This includes assistance from the Human Resources Department (recruitment and testing), Real Estate Division (training facility needs), Public Health (medical clearances) and others.
- b. Continue and augment initiatives, such as CityDrive (the SFMTA's free, accelerated preparation to get a Class B commercial permit), to ensure a strong pipeline for new hires.
- c. Hire 25 trainers over current levels as authorized for FY20 and add 12 new trainers for FY21. Implement short term strategies in order to begin a new class every five weeks of 40-45 students beginning in February 2020.

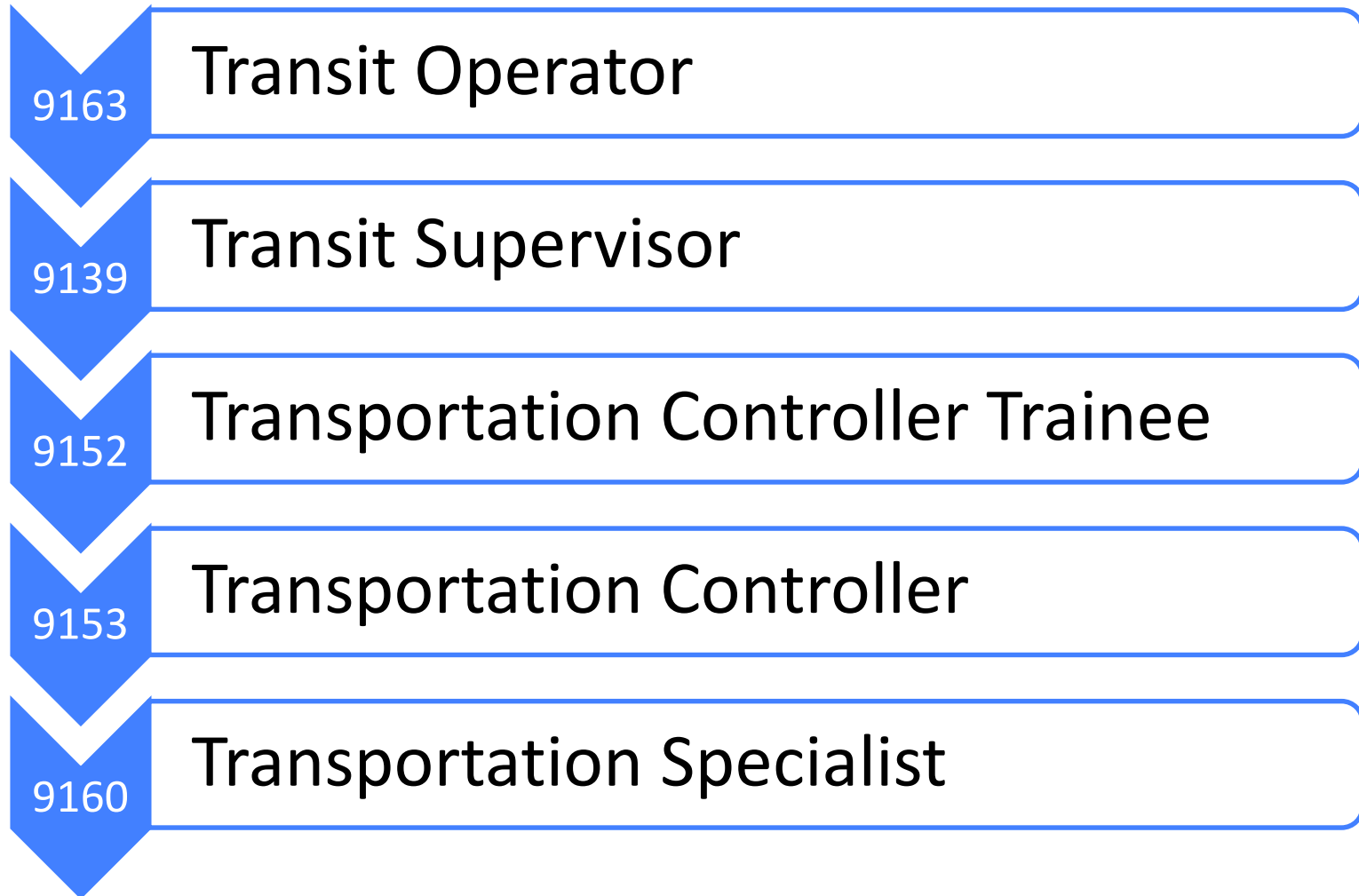
5. (CONTINUED) Accelerate operator hiring and training so that Muni achieves its goal of stabilizing current service levels by Summer 2021. With attrition and training Muni must graduate approximately 525 new Transit Operators by that date.

- d. As new trainers come on board, increase training focused on existing operators with less than five years of experience, including collision avoidance training and other refresher trainings.
- e. Institute a comprehensive effort to address the effects that the rate of operators on long-term leave have on the SFMTA's ability to manage service. Enhanced programs including return to work, wellness, modified duty, disability retirement and others are all needed in this area.
- e. Explore solutions used by other properties to benefit the Transit Operator workforce, including mentor programs, staffing policies and other options to minimize attrition and increase job satisfaction.

6. Create an SFMTA and citywide effort by June 2020 to organize and right-size the transit supervision workforce and remove roadblocks to structuring the work and onboarding staff.

- a. In FY20, the SFMTA must prioritize filling 50 current transit supervisor vacancies. The agency must complement increased hiring with enhanced training programs on service management and safety compliance.
- b. For FY21, the SFMTA Board should add 50 new transit supervisor positions and create an operations compliance group focused on quality assurance, standard operating procedure adherence and attendance management.
- c. Multiple expert studies have shown the need for new classifications and specialization reflecting the multiplicity of transit supervision functions. Marshall internal and citywide human resources expertise and leadership to establish appropriate classifications, training and career ladders for this workforce.

Classification Promotive Pathway



7. Create an SFMTA and citywide program by June 2020 to reduce the significant vacancy rates in maintenance, crafts & engineering classes.

- a. SFMTA and city human resources experts should team up to develop a plan with specific strategies for different maintenance, engineering and craft classifications with unique challenges. Given the varied issues, execution of the plan will require focus by both the SFMTA and Department of Human Resources.
- b. Increase SFMTA human resources positions focused on hiring, recruiting and civil service list development, with a particular focus on hiring for the maintenance workforce.
- c. Review City procedures and requirements in all maintenance, craft and engineering classes for opportunities to speed up, streamline and enhance recruitment and hiring processes.

7. (CONTINUED) Create an SFMTA and citywide program by June 2020 to reduce the significant vacancy rates in maintenance, crafts & engineering classes.

d. Eliminate, change or update minimum qualifications, degrees, licenses and certification requirements with the goal of opening City recruitments and jobs to more people with desirable industry expertise. Focus on rapidly changing fields such as engineering, maintenance and technology.

e. Enlist city and labor leadership at multiple levels to problem-solve in trade groups that are not able to hire due to issues in training, labor force and workforce development issues.

f. The SFMTA and DHR should identify classifications where SFMTA can recruit and test separately from the City, and begin to do so immediately.

8. Explore developing regional and industry coordination efforts for training, certification, apprenticeship and career ladders in the skilled trades that are needed by the SFMTA.

- a. Consider developing additional community college programs for recruitment and certification of targeted job classifications.
- b. Consider successful external training programs and replicating them for SFMTA needed trades if appropriate. Examples to research include; the Southern California Regional Transit Training Consortium (a group of public agencies, colleges and affiliates in a network organization dedicated to the public transit workforce), the training programs used by the SFPUC in its water and wastewater enterprises, and CityBuild – a training effort under the San Francisco Office of Economic and Workforce Development to get San Francisco residents into the construction workforce.

9. Improve Operator communications and feedback loops related to service conditions.

- a. In early 2020, conduct a series of Operator round tables with the new Director of Transportation and Union leadership modeled after the fall 2018 series.
- b. Increase use of the Operator web-portal to solicit staff input on schedules, traffic bottlenecks and safety concerns.
- c. Reduce response time for following up on Operator suggestions and communicate broadly when input is implemented. Promote small successes.
- d. Review procedures for processing Operator “miscellaneous form,” which is a catchall document where Operators often flag service and schedules problems. Ensure input goes to the appropriate divisions and that Operators hear back about how their concerns were addressed.

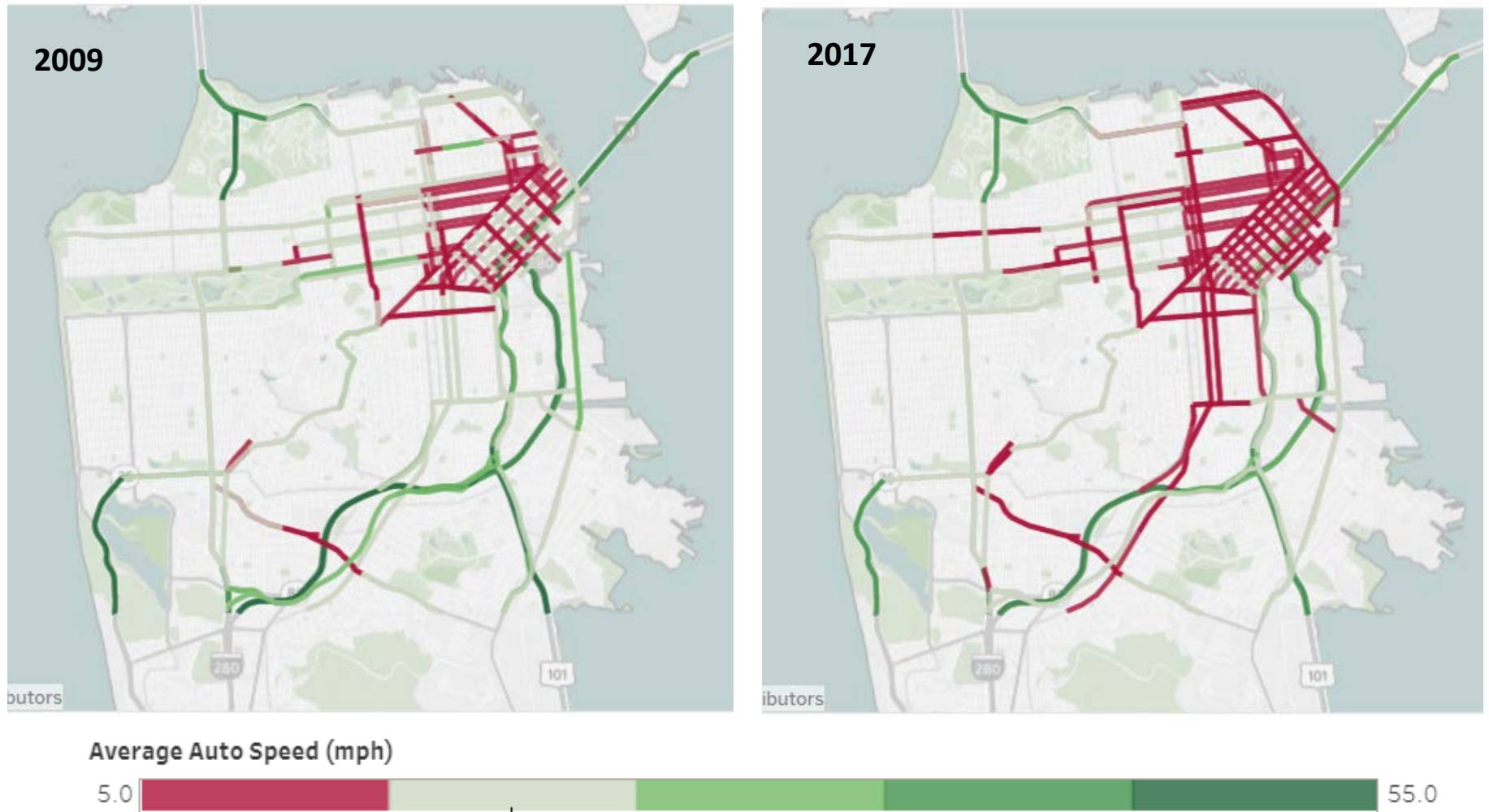
10. The SFMTA should make investments to improve safety for riders and employees and security for its facilities and fleet.

- a. The City's biennial citizen survey and other tests of opinion show declining perceptions of safety on the Muni system. The SFMTA should establish a goal and metrics for increasing citizen and rider feelings of safety and confidence in vehicles and stations.
- b. Fund and adopt shorter-term security enhancements in the FY21 SFMTA budget. These include; 1) the SFMTA's expansion of its existing security contract, 2) a planned program of capital investments to address gaps in facility and tunnel security, emergency power needs and related infrastructure, and, 3) non-police security resources that most improve rider experience and perception such as the Muni Transit Assistance Program.
- c. Develop long-term security initiatives for consideration in future year budgets. These options should include a potential staffing model and plan for an expansion of SFPD presence on Muni in discussion with the Police Chief, city leadership and stakeholders.



- Muni operates in a mixed street environment with transit, cars, pedestrians and other users competing for limited roadway space.
- Over the past 10 years increasing congestion has caused transit speed and reliability to drop. SFMTA investments and strategies have proven benefits but remain insufficient to address increases in demand.
- Investments in delay reduction, including 30 miles of Muni Forward transit priority streets (with 20 more miles legislated), have had a positive impact on the system. Muni Forward's Rapid Network has increased ridership and sped up trip time on these lines.
- Proactive policy, regulatory and engineering campaigns are urgently needed to reduce trip time, increase reliability and meet City "Transit-First" and related climate change goals.
- SFMTA must have a sustainable model for service expansion to meet demand and goals for mode share, equity and growth.
- The City should address the systemic need to expand tunnel capacity in San Francisco. Long term capital plans and funding strategies should be developed, and the planning and political issues begin to be discussed among leadership, stakeholders and residents.
- The City must provide a consistent voice and regional leadership for integration and excellence in transit and mobility systems regionally and locally.

Increasing Downtown Congestion



Citywide, auto speeds have declined 25 percent over the past decade. Transit speeds have also declined by six percent, but would have degraded more significantly without investments in delay reduction, such as the Muni Forward Program.

11. Support congestion management strategies, including pricing alternatives, and accelerate planned redesign of streets and proactive street management to improve transit system performance.

- a. Create a pricing strategy focused on the downtown core with the goals of reducing congestion and improving transit travel time and reliability. Seeking state legislative authority in the coming legislative session is the next step in this process.
- b. Seek state authorization to locally deploy automated traffic enforcement and fully regulate Transportation Network Company deployment.
- c. Build on the SFMTA's efforts to manage emerging mobility services.
- d. Build on the SFMTA's efforts to use curb management to structure street usage for the benefit of transit users, pedestrians and commercial loading.
- e. Secure all needed citywide support for Muni Forward efforts – seamless local approvals, resources and a continuous pipeline of projects.

12. Engage with leadership and stakeholders to affirm and act on Transit First, Muni Forward and Vision Zero as the City's primary mandates in the street environment.

- a. Provide active and consistent leadership support at all levels for proven delay reduction methods serving transit – examples include red lanes, transit preferential signals, and quick build designs.
- b. Clarify and standardize outreach, approval and implementation for Transit First, Muni Forward and Vision Zero efforts. Use lessons from past cases that were delayed or reversed through formal and/or informal processes.
- c. Create a quick-build program for transit priority investments that mirrors the Vision Zero quick-build program.
- d. Proactively communicate to the public the SFMTA's process of testing, analysis, iteration, and showing effectiveness of transit improvements

13. After current service is stabilized, develop and fund Muni plans for growth. Service expansions and new revenue sources are needed to address equity gaps, crowding and population demand in San Francisco and regionally.

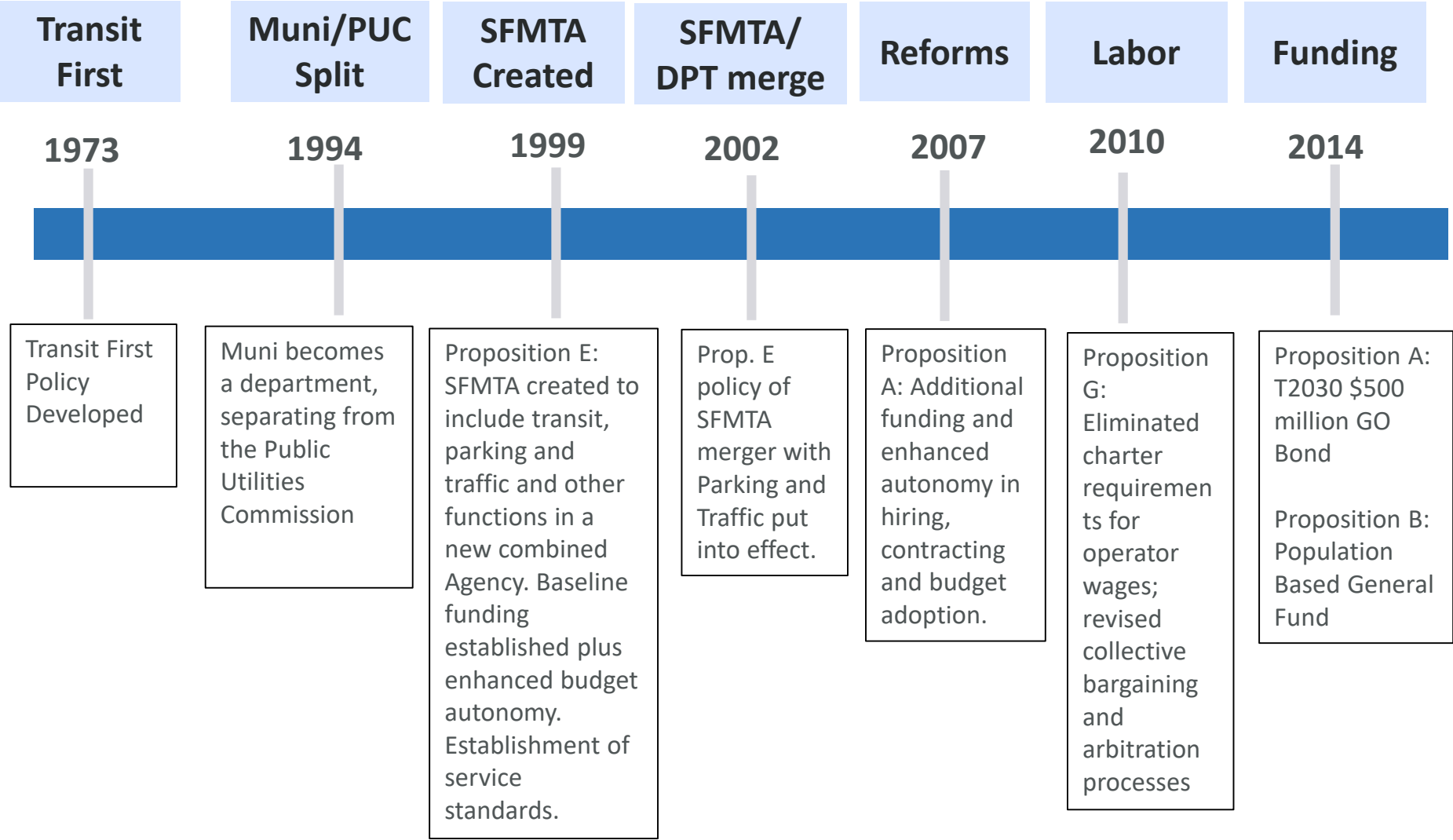
- a. Focus citywide resources on eliminating the operator shortage by summer 2021 and meeting service expectations (goal = 1% or less missed runs).
- b. Develop expansion plans for each budget after service is stabilized in summer 2021. Focus expansion on addressing gaps in equity, crowding (goal = 15% or less crowded peak period service, ridership growth and connectivity gaps. Develop new revenue sources and strategies as needed.
- c. As part of the SFMTA's 90-day improvement plans, work to reduce current equity and other service gaps with near term strategies such as staffing changes, service adjustments and safety programs.
- d. Expand on SFMTA's equity analysis to look at broader mobility issues - addressing access to local and regional transit, new mobility options, and the full complement of transportation resources for all residents.

14. Develop the City's ability to speak with one voice on regional issues and funding priorities. This requires new methods of coordination among the SFMTA, Board of Supervisors, Mayor's Office and other agencies

- a. Institutionalize a director-level meeting to establish shared regional priorities across the SFMTA, SFCTA, and other City agencies.
- b. Adopt new methods to discuss and establish shared regional priorities between the SFMTA and Transportation Authority Boards, through joint meetings and formalized prioritization processes.
- c. Establish consistent professional staffing of City appointees to each regional body and hold an annual meeting to outline top priorities for regional representatives.
- d. With partners including local governments, transit operators and regional agencies, advocate for shared priorities and policies, such as fare integration and transportation demand management studies and requirements for private employers.

- Overall, the governance and organizational structure of the SFMTA is appropriate and efficient. The Agency is well set up to manage service, financial, planning and regulatory functions with an integrated approach. It is subject to a variety of political and stakeholder processes and influences but has a level of autonomy that helps it balance neighborhood, citywide and regional needs in most cases.
- Functional consolidation at the SFMTA of transit operations, parking control, and right-of-way design and engineering is unique and benefits Muni service reliability. Examples include; prioritization of double-parking and other enforcement on transit routes, prioritization of transit needs in street design, and parking management to minimize private auto traffic. At the same time, there are areas where functional coordination can be improved.
- The SFMTA has a somewhat lower level of autonomy over budgets, fares and service changes than many peer transit agencies which are typically stand-alone, regional governments serving multiple cities or counties.
- The SFMTA needs to improve its ability to design for, respond to and communicate with users and customers. New user-centered design concepts and a broader customer service orientation need to be integrated into the organization.

Key SFMTA Organizational Measures



15. Improve coordination and increase capacity between specific functional areas and divisions including street management and parking control, and capital planning and transit.

- a. While the SFMTA has a high level of control and integration, improved coordination among specific SFMTA functions would lead to further improvements. Examples include assignment of parking control officers to support transit management and greater Transit Division participation in capital planning and construction delivery.
- b. The SFMTA has struggled with delivering major construction projects. These issues are not unique to San Francisco - experience shows that the scale and complexity of transit systems and large street and highway construction projects is a challenge across the region and state. The City and the SFMTA should complete an expedited review of this function. In the near term SFMTA may be able to improve capital project delivery with changes to regulatory, procurement and construction contract management rules and processes.

16. The SFMTA should explore new concepts, organizational structures and practices to grow and improve the Agency's customer experience and communications functions.

- a. Research industry best practices for customer experience functions. Options include; formalizing design and testing of new systems and features for customer experience; procuring new customer information systems, and establishing standard operating procedures and training in this area.
- b. Conduct a high-level review of the SFMTA's communications functions to identify areas of strength and areas for improvement.

17. The Bay Area must work together to develop and take new pro-active measures to grow local and regional capacity for planning, funding, building and integrating major transit projects and systems. San Francisco should be a leader in this effort.

- a. The SFMTA and SFCTA, other agencies and leadership should convene a working group and/or use existing research and interagency processes to examine needs, barriers and opportunities in planning, funding and delivery for Bay Area transit projects. Recent work by advocates on regional funding proposals and plans has raised awareness and support and created opportunities for action.
- b. Models proposed and tested in other parts of the world offer ideas on how to better integrate federal, state, regional and local planning, funding and project delivery. These should be considered.
- c. The City, SFMTA and SFCTA should invest leadership and staff time and resources in these areas and work to drive public debate and decisions.



Supporting technical information will be added in Appendices before final publication of the report.

Questions and Feedback for Staff:

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