Pursuant to K.C.C. 1.24.035 A. and F., this meeting is also noticed as a meeting of the Metropolitan King County Council, whose agenda is limited to the committee business. In this meeting only the rules and procedures applicable to committees apply and not those applicable to full council meetings.

1. **Call to Order**

2. **Roll Call**

3. **Public Comment**

4. **Approval of Minutes**
   March 20, 2019 meeting pp. 3-5

5. **Chair’s Report**

To show a PDF of the written materials for an agenda item, click on the agenda item below.

---

**Sign language and communication material in alternate formats can be arranged given sufficient notice (296-1006). TDD Number 296-1024**

**ASSISTIVE LISTENING DEVICES AVAILABLE IN THE COUNCIL CHAMBERS.**

---

King County

Meeting Agenda

Regional Transit Committee

Councilmembers:
Claudia Balducci, Chair
Joe McDermott, Dave Upthegrove
Alternate:

Sound Cities Association:
Dave Asher, Kirkland; Bruce Bassett, Mercer Island; Claude DaCorsi, Auburn; Leanne Guier, Pacific; Kathy Hougardy, Tukwila; Hank Margeson, Vice Chair, Redmond; Amy Ockerlander, Duvall; John Wright, Lake Forest Park
Alternate:
John Chelminiak, Bellevue; Dennis Higgins, Kent; Ryan McIrvin, Renton; Susan Chang, Shoreline

City of Seattle:
Lisa Herbold, Mike O'Brien
Alternate: Debora Juarez

Staff:
Paul Carlson, Lead Staff (206-477-0875)
Marka Steadman, Committee Assistant (206-477-0887)

3:00 PM  Wednesday, April 17, 2019  Room 1001
6. **Vice Chair's Report**

7. **General Manager's Report**

8. **Announcements**

**Setting the Foundation for Work on the Mobility Framework**

9. **Briefing No. 2019-B0048** pp. 7-22

   Perspectives on Equity in Mobility

   *Stuart Cohen, Co-founder and former Executive Director, TransForm*

**Discussion**

10. **Briefing No. 2019-B0049** pp. 23-42

   Bus Fleet Electrification

   *Paul Carlson, Council staff*

**Other Business**

**Adjournment**
King County

Meeting Minutes

Regional Transit Committee

Councilmembers:
Claudia Balducci, Chair
Joe McDermott, Dave Upthegrove
Alternate:

Sound Cities Association:
Dave Asher, Kirkland; Bruce Bassett, Mercer Island; Claude DaCorsi, Auburn; Leanne Guier, Pacific; Kathy Hougardy, Tukwila; Hank Margeson, Redmond; Amy Ockerlander, Duvall; John Wright, Lake Forest Park
Alternates:
John Chelminiak, Bellevue; Dennis Higgins, Kent; Ryan McIrvin, Renton; Susan Chang, Shoreline

City of Seattle:
Lisa Herbold, Mike O'Brien
Alternate: Debora Juarez

Staff:
Paul Carlson, Lead Staff (206-477-0875)
Marka Steadman, Committee Assistant (206-477-0887)

3:00 PM Wednesday, March 20, 2019 Room 1001

DRAFT MINUTES

Pursuant to K.C.C. 1.24.035 A. and F., this meeting is also noticed as a meeting of the Metropolitan King County Council, whose agenda is limited to the committee business. In this meeting only the rules and procedures applicable to committees apply and not those applicable to full council meetings.

1. Call to Order

The meeting was called to order by Chair Balducci at 3:01 p.m.

2. Roll Call

Present: 10 - Mr. Asher, Mr. Bassett, Ms. Balducci, Mr. DaCorsi, Ms. Herbold, Ms. Hougardy, Mr. Margeson, Mr. McDermott, Mr. Wright and Mr. Upthegrove

Excused: 3 - Ms. Guier, Mr. O' Brien and Ms. Ockerlander
Also in attendance were:

Councilmember Chang, Mayor Chelminiak, Councilmember Higgins and Councilmember McIrvin

3. Approval of Minutes

Vice chair Margeson moved approval of the January 16, 2019, meeting minutes. There being no objections, the minutes were approved.

4. Public Comment

The following individual provided public comment:

Alex Tsimerman

5. Chair's Report

There was no Chair's report.

6. General Manager's Report

Christina O'Claire, Division Director, Metro Transit Mobility, commented regarding the "Seattle squeeze" during the viaduct shutdown, use of the Emergency Snow Network and service changes that will begin on March 23, 2019.

7. Announcements

There were no announcements.

8. Election of Vice Chair

Councilmember DaCorsi nominated Councilmember Margeson as vice chair of the Committee. The motion passed unanimously.

Briefing


2019 Regional Transit Committee Work Plan

Paul Carlson, Committee staff, briefed the Committee and answered questions from the members.

This matter was Presented
Setting the Foundation for Work on the Mobility Framework


Change is Coming: Challenges and Opportunities in Transportation’s Future

Regional Transit Committee Chair, Claudia Balducci, provided a PowerPoint presentation to the Committee. Sonjay Gokhale, Senior Advisor, Strategy and New Mobility Partnerships, Metro Transit Department; and Staci Haber, Senior Manager, Mobility Management, Hopelink, and staff support to The King County Mobility Coalition; each provided a presentation and answered questions from the members.

This matter was Presented

Other Business

There was no other business to come before the Committee.

Adjournment

The meeting was adjourned at 4:41 p.m.

Approved this _____________ day of _________________
SUBJECT
Perspectives on Equity in Mobility.

SUMMARY
Setting the Foundation for Work on the Mobility Framework is the theme for a series of Regional Transit Committee (RTC) briefings and discussions in 2019. Each of these agenda items will address aspects of the framework for the equitable implementation of innovations in transit service and mobility called for in Motion 15253.

Today’s briefing, Perspectives on Equity in Mobility, features Stuart Cohen, co-founder and former Executive Director of TransForm, an Oakland, California-based non-profit transportation organization.

BACKGROUND
Motion 15253, approved concurrently with the County’s 2019-2020 biennium budget, calls for Metro to work with the County Council, cities and other stakeholders to begin a planning effort to develop a framework for the equitable implementation of innovations in transit service and mobility. A scoping document is due by April 18, 2019, providing more detail on the equity framework and explaining how it would be coordinated with regional planning efforts for METRO CONNECTS implementation. This scoping document is to be provided to the RTC and the Council.

Motion 15253 seeks to address equity in mobility in response to national trends and local conditions. Setting the Foundation for Work on the Mobility Framework is a series of briefings and discussions to provide the broader context for the RTC’s policy-setting role for the Metro Transit Department as it pertains to equity in the provision of mobility.

Change is Coming: Challenges and Opportunities in Transportation’s Future, the March 20 briefing, provided an overview of transportation changes now under way.

---

1 Motion 15252, adopted at the same time as Motion 15253, expresses support for regional planning, coordination and funding efforts to address the implementation of METRO CONNECTS, King County Metro’s long-range transit service and capital plan and the ongoing maintenance needs of King County’s transportation infrastructure.
Today’s briefing, *Perspectives on Equity in Mobility*, features Stuart Cohen, co-founder and former Executive Director of TransForm. TransForm is an Oakland, California-based non-profit organization that “promotes walkable communities with excellent transportation choices to connect people of all incomes to opportunity, keep California affordable and help solve our climate crisis.”

Mr. Cohen is the co-author of TransForm’s 2017 essay, *A Framework for Equity in New Mobility*, which suggests a comprehensive approach to addressing the equity issues raised by the transformative changes in transportation that were discussed in last month’s briefing. With emphasis on Transportation Network Companies (TNCs) and autonomous vehicles (AVs), this essay provides a “Framework for Equity Outcomes in New Mobility” including a list of questions that should be asked of new technology, broken out into four broad categories. Attachment 2 to the staff report is an excerpt from the essay listing questions for each of the four categories along with nine recommended actions.

Mr. Cohen’s insights and advocacy experiences provide a valuable perspective as the King County government, the Metro Transit Department, and many other jurisdictions and stakeholders work on transit, new mobility, and equity/social justice issues. Consideration of the equity impacts of transformative changes in the transportation sector will factor into the RTC’s review and update of Metro policies.

This staff report provides additional information on current national and local aspects of equity in public transit. Title VI of the 1964 Civil Rights Act bans discrimination based on race, color, or national origin. The King County government’s Equity and Social Justice Strategic Plan seeks to address deep-rooted, persistent inequities. Equity considerations are built into Metro’s Strategic Plan for Public Transportation 2011-2021 and the King County Metro Service Guidelines. These laws and plans provide a context for the response to the changes in our transportation system.

**Title VI** – All U.S. transit agencies are required to comply with Title VI of the 1964 Civil Rights Act, which states that: “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

As summarized in Federal Transit Administration (FTA) Circular 4702.1B Chapter II-1 Section 1, the purpose of the FTA’s Title VI program is to:

a. Ensure that the level and quality of public transportation service is provided in a nondiscriminatory manner;

b. Promote full and fair participation in public transportation decision-making without regard to race, color, or national origin;

c. Ensure meaningful access to transit-related programs and activities by persons with limited English proficiency.
Low-income populations are not a protected class under Title VI, but the FTA includes analysis of low-income population impacts in the Title VI review because of the close relationship between Title VI and environmental justice, also a priority for the FTA.

Transit agencies report to the FTA every three years on Title VI compliance; Metro’s next triennial report will be transmitted to the County Council later this year and must be submitted to the FTA by October 31, 2019. When bus service change ordinances and other major proposed policy actions are transmitted to the County Council, they are accompanied by a Title VI analysis that evaluates whether proposed changes have a disparate impact on minority populations or a disproportionate burden on low-income populations.

**Strategic Plan for Public Transportation and King County Metro Service Guidelines** – The Strategic Plan for Public Transportation 2011-2021 and the King County Metro Service Guidelines (Service Guidelines) include equity concerns within their strategies and processes.

The Strategic Plan’s Strategy 2.1.1 (Design and offer a variety of public transportation products and services appropriate to different markets and mobility needs) addresses the Regional Transit Task Force’s recommendation to emphasize productivity, social equity, and geographic value in service reduction and growth decisions: “Metro’s companion piece to the strategic plan, the King County Metro Service Guidelines, considers data for productivity, social equity, and geographic value to help identify which level of service will be appropriate for transit corridors throughout King County.”

The Service Guidelines describe the use of Social Equity in this way:

**Social equity** indicators show how well a corridor serves any areas where there are concentrations of minority and low-income populations along the corridor. This is done by comparing boardings in these areas against the systemwide average of all corridor boardings within minority and low-income census tracts. Metro assigns the highest value to corridors with concentrations of boardings in low-income or minority census tracts that are higher than the system average. Those close to the system average, but just below, are also awarded value in this process.

---

2 The Service Guidelines methodology for identifying preliminary target corridor service levels has a total of 40 points assigned based on measurable criteria; in addition to up to 10 points for the Social Equity boarding data, up to 20 points for Corridor Productivity are based on households, park-and-ride stalls, jobs, and university/college student enrollment within one-quarter mile of transit stops; and up to 10 points are assigned for Geographic Value based on the corridor’s role as a connection to regional growth centers or transit activity centers. – King County Metro Service Guidelines (2015 Update), pages 6-8.

3 Low-income tracts are those where a greater percentage of the population than the countywide average has low incomes (less than 200% of the federal poverty level depending on household size), based on current American Community Survey data. Minority tracts are defined as tracts where a greater percentage of the population than the countywide average is minority (all groups except White, non-Hispanic), based on current census data.
The Service Guidelines also list low-income and minority needs among the factors to consider in developing alternative services (now “Community Connections”). This is consistent with the Strategic Plan’s Strategy 2.1.2, which provides policy guidance on equity for historically disadvantaged populations:

**Strategy 2.1.2: Provide travel opportunities and supporting amenities for historically disadvantaged populations, such as low-income people, students, youth, seniors, people of color, people with disabilities, and others with limited transportation options.**

Metro serves historically disadvantaged populations with a wide variety of public transportation services and supporting amenities such as bus stops, bus shelters, seating, lighting, waste receptacles, and public information. All buses on the fixed-route system are accessible for most people with disabilities, complementary paratransit services are available for eligible individuals with disabilities who cannot use regular bus service, and facilities are accessible in compliance with the Americans with Disabilities Act. Metro offers other services as well, such as the innovative Community Transportation Program which includes the Taxi Scrip Program, Transit Instruction Program, and Community Access Transportation (CAT). Metro also provides programs such as Jobs Access and Reverse Commute (JARC), a federal program that is intended to connect low-income populations with employment opportunities through public transportation. Metro also works with local school districts to respond to student transportation needs. Metro regularly reports on its services in compliance with Title VI of the Civil Rights Act of 1964.

**King County Equity and Social Justice** – The Equity and Social Justice (ESJ) Strategic Plan 2016-2022 is King County’s vision for long-term, sustainable change in the community and within county government.

The ESJ Strategic Plan identifies **access to safe and efficient transportation** as one of 14 Determinants of Equity. Accordingly, this Plan’s “pro-equity agenda” includes specific Transportation & Mobility efforts centered on (1) investments in targeted Metro service improvements, (2) investments in community partnerships, (3) investments in the people and places with the greatest needs, and (4) leveraging the County’s role as a major employer.

King County is prioritizing racial justice as part of its government work overall and implementation of our Equity and Social Justice (ESJ) Strategic Plan. As noted on the County’s Office of Equity and Social Justice webpage:

> When we look at data across our communities, whether it is people’s health, access to housing and good paying jobs, graduation rates, incomes or incarcerations, disparities are greatest when we look by race. The most persistent and detrimental disparities are starkest when we look at race. By leading with racial justice we are committing to taking on the root causes of our most challenging problems and to focus where we can have the biggest impact and needs are greatest.
The Office of Equity and Social Justice has developed an Equity Impact Review (EIR) tool for County agencies to integrate into their decision-making processes; Metro plans to use this tool in its support work for the Mobility Framework. The King County Council is developing its own analysis tool, entitled the ESJ Legislative Analysis Methodology, to evaluate equity and social justice impacts of legislative proposals.

As the RTC and other policymakers respond to the challenges of ensuring equity in a rapidly changing transportation system, these are some of the laws and policies that will shape the discussion.

INVITED

1. Stuart Cohen, Co-founder and former Executive Director, TransForm

ATTACHMENTS

1. Motion 15253
2. A Framework for Equity in New Mobility (excerpts), TransForm Report
Motion 15253

Proposed No. 2018-0543.2  
Sponsors Balducci and Kohl-Welles

A MOTION outlining a process to develop a regional mobility framework that will ensure that innovations in mobility put people first, use public space equitably and efficiently and are coordinated with transit policies and regional funding strategies.

WHEREAS, in addition to an increasing reliance on public transit, the region's residents are turning to mobility and technology options as an alternative to single occupancy vehicles, including: walking; bicycling; telecommuting; ordering online; using taxis, transportation network companies, carpool, vanpool and ride share options; and experimenting with new technologies and opportunities, including bike-share companies and passenger information applications, and

WHEREAS, in response to the growth in new mobility options, in September 2014 the King County council adopted Ordinance 17892, which set new regulations for for-hire transportation, including taxicabs, for-hire vehicles, for-hire drivers and transportation network companies, and

WHEREAS, to outline a shared vision in which all people have equitable opportunities to thrive, in 2016, King County developed an equity and social justice strategic plan, 2016-2022, and

WHEREAS, in June 2016, the King County council adopted Ordinance 18301,
which adopted updates to the Strategic Plan for Public Transportation 2011-2021 and the
King County Metro Service Guidelines, which identify the criteria of corridor
productivity, social equity and geographic value in setting transit service levels, and

WHEREAS, in January 2017, the King County council adopted Ordinance 18449, which adopted METRO CONNECTS, a long-range transit service and capital plan that
outlines a vision for a seventy percent increase in bus service hours by 2040,
accompanied by significant capital investments in fleet, operating base capacity,
passenger access and facilities, transit pathways and other needs, and

WHEREAS, in August 2018, the King County council adopted Ordinance 18777, which established the King County Metro transit department, and

WHEREAS, King County Metro has expressed the goal of delivering more and
better mobility solutions by making transit easy to use and available to all, building
necessary transit infrastructure, partnering with cities and other stakeholders, and
enabling Metro employees to do top quality work, and

WHEREAS, King County Metro has expressed the goal of embracing and leading
on innovations in the transportation market by facilitating new mobility partnerships, and

WHEREAS, King County has stated its commitment to increasing equity in
mobility by planning, developing and delivering mobility solutions that provide access to
opportunities for people with low or no incomes, people of color, seniors, people with
limited English proficiency, people with disabilities and those who commute during non-
peak travel periods or live or work in rural areas, and

WHEREAS, jurisdictions and transit agencies must develop policies around
mobility innovations in the context of quickly emerging technologies, and
WHEREAS, as these mobility policies are developed, it is essential that jurisdictions and transit agencies learn from the lessons of the past, so that innovations in mobility are implemented with intention, in ways that put people first and use public space efficiently and equitably;

NOW, THEREFORE, BE IT MOVED by the Council of King County:

A. The Metro transit department, under the leadership of the executive and working in coordination with the council, should begin a planning effort during 2019 to develop a framework for the equitable implementation of innovations in transit service and mobility.

B. The framework should include, but is not limited to:

1. A review of emerging technologies and local and national best practices;

2. Analysis of potential implications for the Metro transit department and opportunities to coordinate mobility innovations with fixed-route and other services;

3. Coordination with the regional planning, coordination and funding efforts to address the implementation of METRO CONNECTS, consistent with the strategy identified in Motion XXXX (Proposed Motion 2018-0542);

4. Outreach and engagement with regional partners, transit riders and local communities, including but not limited to low-income populations, communities of color, immigrants and refugees, and limited English speaking populations;

5. A review of potential policies for the allocation of public space, including streets, sidewalks, transit stops and station areas, focused on efficiency and equity of use;

6. A review of industry-wide workforce trends, including the potential implications of new mobility options on labor needs, career opportunities, recruitment,
training and economic prospects of transportation workers;

7. Guiding principles that will inform the framework development work, including putting people first; and

8. Potential revisions and updates to countywide public transit documents including but not limited to the Strategic Plan for Public Transportation, the King County Metro service guidelines and the METRO CONNECTS long-range plan.

C. Metro Transit should develop a scoping document outlining the proposed coordination with the regional planning effort outlined in Motion XXXX (Proposed Motion 2018-0542), as well as the timeline, expected work tasks and budget to develop the mobility framework, and should file this scoping document by April 18, 2019, in the form of a paper original and an electronic copy with the clerk of the council, who shall retain the original and provide an electronic copy to all councilmembers, the council chief
of staff and the lead staff for the regional transit committee and the lead staff of the
mobility committee, or its successor.

Motion 15253 was introduced on 11/5/2018 and passed by the Metropolitan King
County Council on 11/13/2018, by the following vote:

Yes: 9 - Mr. von Reichbauer, Mr. Gossett, Ms. Lambert, Mr. Dunn,
Mr. McDermott, Mr. Dembowski, Mr. Upthegrove, Ms. Kohl-Welles
and Ms. Balducci

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON

______________________________
Rod Dembowski, Chair

ATTEST:

______________________________
Melani Pedroza, Clerk of the Council

APPROVED this _____ day of ____________, ______.

______________________________
Dow Constantine, County Executive

Attachments: None
A Framework for Equity Outcomes in New Mobility

With new technologies and services emerging by the month, cities and governing bodies will need a framework for evaluating equity impacts. The framework below is a starting place that can be tailored to meet the needs of communities.

**INCREASED ACCESS TO OPPORTUNITY**
- Does it overcome barriers (financial, cultural, technological, geographic) to accessing new mobility, so vulnerable populations actually benefit?
- Does it improve, not impede, the movement of public transit?
- Does it increase access to jobs, education, health care, and other destinations?
- Does it reduce travel times for low-income households?
- Does it prioritize the needs and trip patterns of vulnerable populations?

**AFFORDABLE OPTIONS**
- Is the price low enough for low-income individuals to regularly use the service?
- In instances where existing services such as bus lines are being cut, are there mechanisms to ensure that transportation costs don’t increase for low-income households?
- Is it likely to reduce transportation costs in the long run (e.g. by reducing the need for vehicle ownership or for parking in new developments)?

**MORE HEALTHY & SAFE COMMUNITIES**
- Does it reduce air pollution and greenhouse gas emissions, both of which disproportionately burden low-income communities and people of color?
- Does it serve people with disabilities, or people who walk or bike?
- Are there policies in place to prevent discrimination or racially-biased policing?
- Is it likely to improve health and reduce health disparities for vulnerable populations (e.g. by reducing crashes and fatalities or focusing vehicle electrification in impacted communities)?

**REDUCED INCOME INEQUALITY & UNDEREMPLOYMENT**
- Does it increase employment with stable, well-paying jobs?
- Does it create pathways for low-income individuals to enter the new mobility work force?
- Are there policies in place to ensure fair treatment of the labor force (e.g. providing a living wage, ability to unionize, benefits, etc.)?9
- Are we creating programs to train workers and replace jobs that will be lost with vehicle automation?
The new mobility conversation has focused too much on technology and too little on human impact. We must humanize the role of emerging mobility technologies by addressing the current and historically unaddressed needs of those left out of transportation improvements. The following are recommendations for new mobility companies and the public sector to prioritize communities in most need of transportation options and those most impacted by climate pollution:

1. Authentically engage and respond to the needs of disadvantaged communities. Disadvantaged populations are currently not strongly engaged in issues of new mobility and have difficulty affording electric vehicles (EVs) or using the infrastructure for them. As the pace of change accelerates, it is critical to expand efforts to partner with disadvantaged communities in new mobility planning. These communities need to be part of the planning process as early as possible to ensure solutions respond to their needs and concerns.

2. Conduct equity demonstration projects. We need pilot projects that allow participation for those with limited access to credit and technological barriers, such as Chicago’s new Ventra card and app. Ford GoBike in the Bay Area launched with a discounted low-income membership ($5 for the first year) that allows for cash payment, and includes an accessibility pilot to make adaptive bikes available to the disabled community. Every agency supporting new mobility programs should work to maximize uptake in neighborhoods that are either underserved or pollution-burdened by existing transportation systems.
3 **Give shared modes priority in planning and infrastructure.** Cities should give priority for public transit, high-occupancy vehicles and car share vehicles in urban areas. This includes designating curb space for shared vehicles and dedicating more traffic lanes to public transit and high occupancy vehicles on local streets and highways.

4 **Prioritize equitable service coverage to increase access to disadvantaged communities.** As cities and agencies approve and permit new mobility operations in the public right-of-way, they should set regulations and/or prices to support coverage in lower-income geographies. Where possible, they should support community benefits agreements between the community and new mobility companies, or otherwise foster a level of accountability so all people benefit from new mobility and no group is disadvantaged.

5 **Incorporate new mobility including potential benefits of shared AVs into long-term plans for housing and land use.** One of the most effective climate emissions reduction strategies is to create affordable housing near public transportation. By further reducing vehicle ownership, new mobility can allow us to plan for less parking, which leaves more space and funding for homes and other beneficial uses. Transportation agencies should be incorporating potential benefits of technology in long term planning, including the possibility of fleets of autonomous vehicles operating on a network of express lanes on highways. Doing so could clarify the pathways to reduce demand for roadway expansion, as well as justify additional investments in public transportation and new mobility.

6 **Increase shared electric/zero emission vehicles in disadvantaged communities.** No groups should be excluded from using clean vehicle technology and infrastructure. Los Angeles’s new shared mobility project that locates electric car share vehicles in underserved communities provides an important new model for increasing access to clean vehicles.

7 **Plan for affordability.** As agencies re-examine transit routes and possible new mobility alternatives, they should ensure subsidy structures specifically account for low-income riders, and work to keep costs from increasing over current costs.

8 **Provide funding to scale equity projects.** Cities and transportation agencies should set aside funding specifically to scale successful models of equity in new mobility. The California Air Resources Board, for example, has an excellent program focused specifically on getting electric vehicle car sharing into disadvantaged communities.

9 **Create pathways to opportunity in the new mobility economy.** With automation there will inevitably be fewer driving jobs in the future. In the long term, we need specific pathways for low-income individuals to participate as workers with benefits in this new mobility economy, and to fund job training programs.
9 Icons from Noun Project created by: Creative Stall, Alice Noir, Lorie Shaull, AlePio (in order of appearance).


SUBJECT: Bus fleet electrification.

SUMMARY: This briefing will provide the Regional Transit Committee (RTC) with a status report on plans for bus fleet electrification to implement the goal of a zero-emissions fleet by 2040. The briefing will cover developments since June 2017, when the Committee heard a presentation on zero-emission fleet plans.

BACKGROUND:

King County and Metro Transit Department policy supports the reduction of vehicle emissions to improve local air quality and to reduce Greenhouse Gas (GHG) emissions that contribute to climate change. Because transportation accounts for almost half of GHG emissions within the county, public transit has a dual role, both in providing alternatives to higher-emission personal motor vehicles and in reducing transit vehicle emissions.

The METRO CONNECTS Long Range Plan envisions a future bus fleet that consists entirely of zero-emissions, low-floor vehicles (Attachment 2, Fleet, pages 64-67.) The METRO CONNECTS vision builds on previous Strategic Plan for Public Transportation 2011-2021 policy guidance such as Strategy 4.2.1:

Strategy 4.2.1: Operate vehicles and adopt technology that has the least impact on the environment and maximizes long-term sustainability.

Metro will continue exploring opportunities to employ energy-efficient vehicles for both fixed-route and other services, such as its commuter van programs. Metro has already reduced vehicle emissions by developing and using clean-fuel bus technologies, such as hybrid diesel-electric coaches and zero-emission electric trolleys. Metro is committed to being a leader in the adoption of new energy-efficient and low-emission technologies.
The County's 2015 Strategic Climate Action Plan (SCAP) recognizes the role of transit service in reducing transportation GHG emissions:

“Transportation is the largest source of GHG emissions in King County, accounting for nearly half of all GHG emissions that occur within King County’s geography. In the region, GHG emissions from transportation result from burning gasoline, diesel, natural gas, and other types of fossil fuels. …

“To reduce transportation-related emissions, a variety of measures are needed to reduce fuel use, deploy cleaner technologies and fuels, and reduce both vehicle miles traveled (VMT) and the number of single occupant vehicles on roadways. King County influences transportation-related emissions by directing growth within the Urban Growth Area (UGA), providing public transit, vanpool and ridesharing services, and creating opportunities for walking and bicycling —choices that eliminate single occupancy vehicle trips, mitigate traffic congestion, support efficient land use, help improve public health, and reduce transportation costs.”

The 2015 SCAP set a 2040 goal of doubling Metro transit ridership compared to 2007, with interim goals:

- 127 million passenger boardings by 2015;
- 142 million passenger boardings by 2020;
- 225 million passenger boardings by 2040.

Although Metro is likely to fall short of the 2020 goal, transit ridership in the region is growing. Achieving the 2040 goal will require implementation of the METRO CONNECTS expansion of bus service and Community Connections services, along with the capital facilities and expanded fleet.

The 2016 King County Comprehensive Plan includes Policy F-215b, which directs the County to “strive to provide services and build and operate public buildings and infrastructure that are carbon neutral.” To support implementation of this policy, a February 2019 report, Implementation Plan for a Carbon Neutral King County Government, recommends that King County achieve more ambitious targets to reduce King County’s operational GHG emissions by 80 percent by 2030 compared to 2007 levels. The County Council’s Mobility and Environment Committee is tasked with reviewing Proposed Motion 2019-0119, which would approve this Report.

Recognizing that the greatest emission reductions in the transit fleet would result from battery electric bus technology, the County undertook to test battery buses and charging facilities on two Eastside bus routes, Routes 226 and 241.

On June 21, 2017, the RTC heard a briefing on Metro’s plans to achieve a zero-emission bus fleet by 2040. At that time, it was noted that:
• The 2017-2018 budget designated additional capital funding for electric battery buses and fueling facilities to expand the pilot project that is testing battery buses on Eastside bus routes
• An initiative announced by the Executive would increase to 120 the number of electric battery buses to be purchased through 2020
• Motion 14854, approved in April 2017, adopted a feasibility report on achieving a carbon-neutral or zero-emission transit fleet.

During 2019-2020, Metro proposes to proceed with an expansion to its revenue vehicle fleet, including a fairly significant expansion in battery electric buses and associated infrastructure (chargers, substations) following Council direction to transition the fleet to zero-emission.¹

The 2019-2020 biennium budget provides $126.7 million for battery electric buses and infrastructure. With this funding, Metro plans to:

• lease 10 extended range buses, including six 40-foot and four 60-foot buses,
• order up to 77 battery buses, with a combination of 60-foot buses and 40-foot buses dependent on available bus and charging technology, and
• install associated infrastructure.

Metro is simultaneously trying to expand its bus fleet and transition that fleet to consist entirely of trolley buses and battery buses. Metro’s Capital Division must therefore plan for additional operating base capacity while ensuring that, ultimately, all bus bases will have the appropriate infrastructure needed by the battery buses. In its recently-released Operational Capacity Growth Report (March 2019), Metro describes the challenge and recommends a phased series of projects to maximize base capacity and meet the battery bus maintenance requirements:

“All of Metro’s seven bases are currently operating beyond optimal capacity and are nearing the point of unstable operations—which means higher costs, deteriorating service quality, and increased safety risks. Currently, Metro is unable to add new service that requires more buses, simply because there is no room to park or provide maintenance for additional buses. This affects Metro’s ability to meet growing ridership and to address service quality issues (overcrowded trips, for example). It also constrains Metro’s ability to support partners in their desires to expand service.

“METRO CONNECTS envisions Metro service increasing by approximately 30 percent by 2025 and 70 percent by 2040. To meet this anticipated demand, Metro must increase its vehicle fleet by more than 40 percent—a total of 2,145 buses by 2040, or more than 620 buses over the

¹ Ordinance 17971, Motion 14633, Motion 14854
2016 fleet. Metro will need the equivalent capacity of two or three additional bases to support this service vision. Metro facilities also need critical upgrades to support the agency’s goal to transition to a 100 percent zero-emission bus fleet by 2040. This conversion is critical to meeting the emissions reduction targets in the King County Strategic Climate Action Plan. The transition to a zero-emissions fleet will require significant renovation of Metro facilities while we continue to operate and expand service.”

The Operational Capacity Growth Report and its appendices are available at Metro’s Transit Planning documents webpage:

https://www.kingcounty.gov/depts/transportation/metro/about/planning.aspx

INVITED

1. Danny Ilioiu, Zero-Emissions Fleet Strategic Planning Manager, Capital Division, Metro Transit Department
2. Lisa Shafer, Coordinated Portfolio Manager, Fleet, Capital Division, Metro Transit Department

ATTACHMENTS

1. Metro’s Zero-Emissions Fleet, Metro Transit Department presentation
2. METRO CONNECTS Long Range Plan, Fleet section (pages 64-67)
METRO’s Zero-Emissions Fleet

Presented by:

Danny Ilioiu
Zero-Emissions Fleet Strategic Planning Manager

Lisa Shafer
Coordinated Portfolio Manager Fleet
Agenda

- Background
- Where we are today
- Roadmap to the future
Recommendation:
Transition to a zero-emission fleet by 2040

- **Evaluation criteria**
  - Environment
  - Social equity
  - Service and fleet needs
  - Cost
  - Supporting systems
Advancing Climate and Equity goals

- Eliminate greenhouse gas emissions from fleet operations
- Eliminate tailpipe air pollution emissions
- Reduce noise to levels equivalent to a passenger car
- Prioritize initial deployment in low income and minority communities most vulnerable to air pollution

**Greenhouse gas emissions**

<table>
<thead>
<tr>
<th>Year</th>
<th>Emissions</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>100K</td>
<td>25%</td>
</tr>
<tr>
<td>2030</td>
<td>50K</td>
<td>50%</td>
</tr>
<tr>
<td>2040</td>
<td>0K</td>
<td></td>
</tr>
</tbody>
</table>

*compared to 2007*
Steps to get there

• **Study**: Test, learn from others, observe

• **Deploy**: test, evaluate and plan to scale-up
  • Buses
  • Charging infrastructure
  • Base capacity
Our fleet today

~1620 Buses Total

- 185 Zero-Emissions Buses
  (12% of our fleet)
  - 174 Electric Trolley Buses
  - 11 Fast Charge 40’ Battery Electric Buses
  - 6 Extended-Range Battery Electric Buses (Test-2019)
Our current experience: Fast Charge buses

- 11 40’ fast charge buses
- Charge in 10 minutes
- Range of 25 miles
- Serving 2 routes – 226 and 241
Extended range test

Evaluation

• 140 mile range
• Charge in 4 hours or less
• Performance on hills
• Heating and cooling impact on range
• 40’ and 60’ buses
• Passenger load impact on range
Adding base capacity

- **2021** Interim Base
  +120 Buses
  (BEB* compatible)

- **2025** South Annex Base
  +125 Buses (net gain)
  (BEB* compatible)

- **2030** New Base
  (South King County)
  +250 Buses

- **2030-2040** Retrofit existing bases for BEB*

- **2040** 100% Zero-Emissions

---

*BEB = Battery electric bus*
Partners and Stakeholders

- Utility Partners
- Bus and Charger Manufacturers
- Transit Partners
- Industry & Technical Partners
- King County Departments
- Customers
- Transit operators
# Key Considerations

## Bus
- Passenger capacity
- Range
- Cost and availability

## Battery
- Fast charge vs slow charge
- Size
- Technology – life cycle, performance, cost, safety

## Charging Infrastructure
- Fast charge vs slow charge
- Base or in-route; plug-in vs overhead
- Standardization
- Smart Charging

## Electricity - Utility
- Supply and source (renewable)
- Infrastructure and readiness
- Rate structure

## Operations
- Route Design, Scheduling
- Workforce training
- Community Engagement
- Fleet planning
Thank you!

Danny.Ilioiu@kingcounty.gov
Lisa.Shafer@kingcounty.gov
Fleet

Cutting-edge vehicles designed for customer comfort and safety as well as efficient and green operations.

Metro would need to expand its fleet of buses, vans, and support vehicles to provide the higher levels of service envisioned in METRO CONNECTS. We estimate that we would need about 625 additional buses by 2040. With these additional buses, and the replacement of our existing fleet of about 1,400 vehicles, METRO CONNECTS envisions a Metro fleet of entirely zero-emissions, low-floor vehicles.

What would the Metro fleet look like?

As of 2015, Metro’s fleet had about 1,400 fuel-efficient buses, including hybrid diesel-electric and clean-diesel coaches, electric trolleys, and several battery buses. Our fleet also includes paratransit and DART vehicles, Vanpool vans, and electric cars for the Metropool commute program. A large additional “non-revenue” fleet used to support service has tow trucks, supervisor vans, maintenance trucks, and more.

METRO CONNECTS would require expansion throughout the fleet, including 625 new buses by 2040. Replacement vehicles would also be needed as current vehicles reach the end of their useful lives—usually after 12 to 15 years of service.

Compared to the current network, more of the new service proposed in METRO CONNECTS would be in non-peak hours, when we use fewer buses. This means buses would be used more efficiently in the future network, operating for more hours a day. As a result, we could purchase relatively fewer buses compared to the increase in service hours.

METRO CONNECTS also envisions moderate expansion of our electric trolley bus network, which in 2015 carried about 20 percent of Metro riders. METRO CONNECTS proposes that Metro would invest strategically in the trolley network, focusing first on places where a relatively small expansion of wire could allow new service concepts to operate successfully. These include places that have frequent service, common overhead wires with existing trolley bus routes, steep hills, and dense urban service areas.
**Smart design**

As we purchase new fleet vehicles, we would continually improve their design with the ease, comfort, and safety of customers and operators in mind. We would ensure that vehicles support fair treatment and access for everyone we serve. We would continue to emphasize features that make bus boarding speedy and easy and that keep maintenance costs down.

We would also proactively include systems that support developing technology. Bus real-time intelligence systems provide immediate access to useful information about operations and conditions, and could support features like these:

- Real-time information for customers about the availability of seats, bike storage space, and space for wheelchairs or other mobility aids.
- Telematics—vehicle systems that use telecommunications to send, receive, and store computer-based engine data—for proactive identification of mechanical problems.
- Surveillance video that uses license plate readers and object recognition to identify vehicles parked in bus-only lanes.
- On-board environmental monitors for weather conditions and air pollution.
- Traffic control that goes beyond transit signal priority, such as remote activation of pedestrian crossing buttons at intersections to encourage patrons not to jaywalk to catch the bus.
- Secondary uses of a vehicle, such as an emergency communications hub or power generator.
- Safety features including audible signals to pedestrians.

For more information

See Appendix F for more detail on the topics in the Critical Services Supports section.
Fleet, continued

Going green

Metro is committed to having the greenest fleet possible. Our agency was a national leader in adopting diesel-electric hybrid bus technology, and we are replacing our aged trolley bus fleet with zero-emission trolley buses that can use battery power to travel short distances off-wire. We’re moving toward a fleet of all hybrid or electric coaches, and we’re preparing for rapidly evolving electric vehicle technology to keep our fleet on the cutting edge of environmental improvements and to move toward a zero-emissions fleet.

The King County Strategic Climate Action Plan (SCAP) calls for a 10 percent reduction in normalized energy use in Metro operations by 2020, compared to a 2014 baseline. Metro is already making progress toward this target.

The SCAP also calls for a 10 percent increase in alternative fuel use across King County fleet fuel purchases. Alternative fuel sources include electricity, biofuels, compressed natural gas, liquefied natural gas, hybrid, plug-in hybrid, battery drive, or propane.

Metro is already beginning to evaluate how we can achieve our vision of a zero-emissions fleet. Initial recommendations will be developed in 2017, and we will continue to study emerging and cutting-edge technologies.
What would it take?

- **Procure state-of-the-art vehicles** to support expanded service and replace vehicles at the end of their useful lives.
- **Use fleet design criteria that focus on customer and driver needs.**
- **Support and expand the trolley network by:**
  - Filling gaps in the network to allow flexibility.
  - Working with partners to extend wire to new streets so routes could be converted to trolley bus service.
  - Keep the trolley system infrastructure in a state of good repair through regular maintenance and planned replacement cycles.
- **Meet SCAP targets by moving toward a zero-emissions fleet.**

---

**2020 SCAP Targets**

- **10%** Reduction in energy use below 2014 rates
- **10%** Increase in alternative fuel use

**Metro Targets**

- **100%** Hybrid or electric by 2018