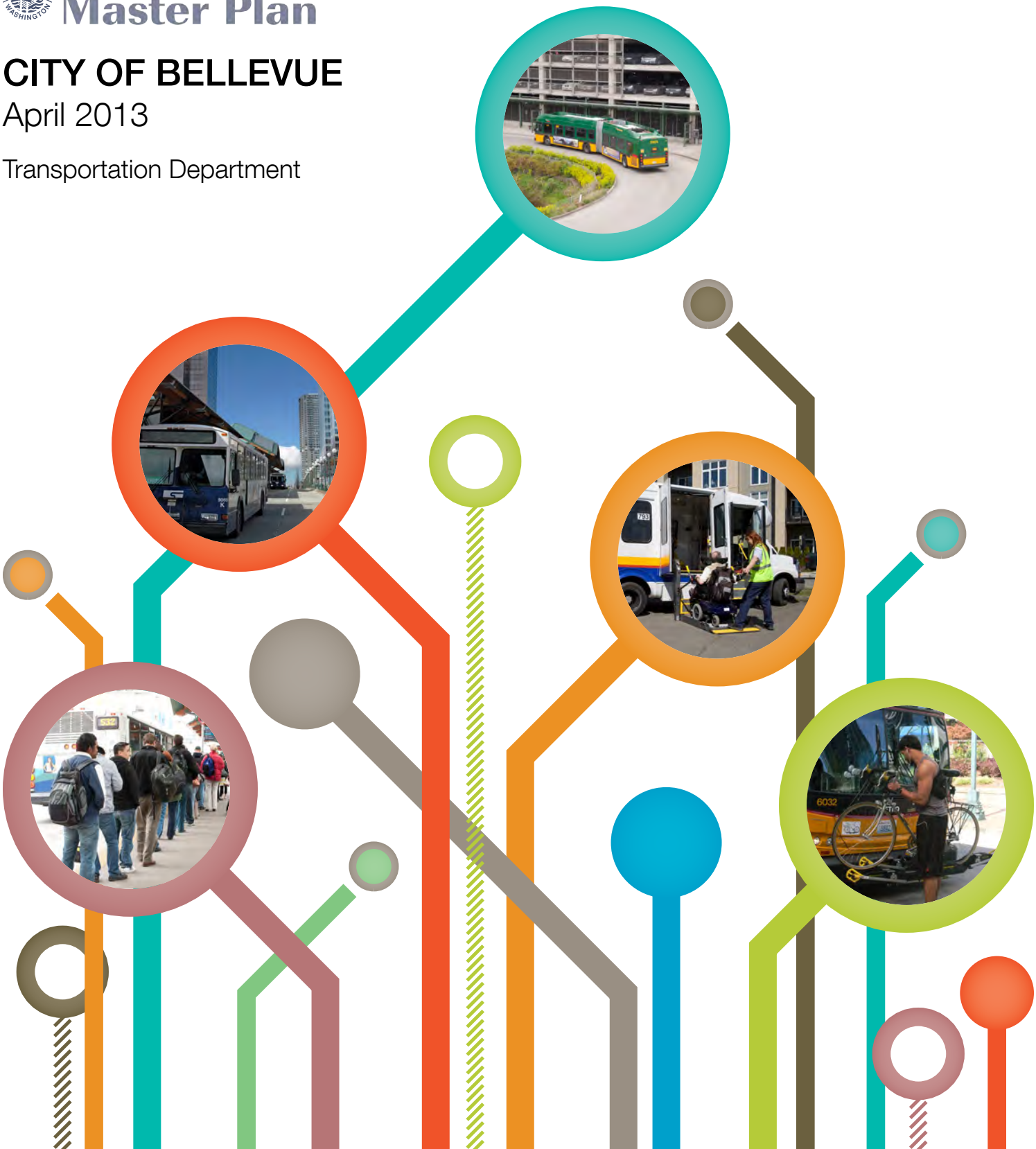
TRANSIT NETWORK DESIGN WORKSHOP REPORT

Bellevue Transit Master Plan

CITY OF BELLEVUE

April 2013

Transportation Department



THANK YOU

The City of Bellevue would like to thank the following individuals who took the time to participate in the Transit Network Design Workshop:

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Raid Tirhi, City of Bellevue
Scott Lampe, Transportation Commission
Stephen Hunt, King County Metro
Steve Kasner, East Bellevue Community Council
Thang Nguyen, City of Kirkland


BUS BAY
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237 Woodinville
249 Redmond
261 Overlake
342 Shoreline
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1160

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INTRODUCTION

The City of Bellevue is updating its 2003 Transit Plan with a comprehensive twenty year look ahead to the type of system that will be required to meet Bellevue's transit needs through 2030. The Transit Master Plan currently being developed will establish short- and long-term policies, programs, and projects that help foster a high-quality transit system that is more effective at connecting residents, employees, and visitors in Bellevue with the places they want to go.

As part of the ongoing outreach supporting this planning process, the Transportation Department held the Transit Network Design Workshop on January 31, 2013 to better identify priorities related to the location and frequency of transit service in and around Bellevue. This report details the proceedings of that workshop and the guidance gleaned therefrom.

PURPOSE

Planning the future of transit in Bellevue can generally be considered to consist of two broad processes. One part is technical, based on analysis of past and current operations, existing and future projected ridership, demographic, and land use trends, and the consideration and application of Metro Service Guidelines and accepted industry best practices. This technical process can help to inform where and how resources might reasonably be allocated to achieve productive and efficient services, but such analysis only provides guidance, not definitive answers.

Situations frequently arise in which decisions must be made about competing interests of comparable merit, yet with limited resources only one solution can be pursued. As such, the second part of the transit planning process involves carefully considering how alternative courses of action address the values and interests of the end-users of the transit system—the public. It is therefore vital that staff has a clear understanding of the community's preferences to ensure that the decisions ultimately made will reasonably reflect the expectations of the community. Outreach has therefore been an important, on-going part of the Bellevue Transit Master Plan process.

"Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or Post Office, go out to dinner and a movie, and play with your kids at the park—all without having to get in your car."

– Ray LaHood, United States Secretary of Transportation

Between February and March of 2012, the Transportation Department administered the Bellevue Transit Improvement Survey, which collected input from more than 4,200 members of the public about their use and perspectives of transit service in Bellevue. In September 2012, staff facilitated the Transit Master Plan Forum, at which members of various city boards and commissions provided guidance on how the Council-approved Project Principles should be considered in the context of some of the fundamental tradeoffs regarding transit service allocation. Since then, meetings have been held with local transit officials to better understand

known issues, expected challenges, and potential opportunities facing transit operations in Bellevue in the next twenty years. Using this information, Staff has begun the process of planning the long-term transit vision—the City's plan for local and regional transit in 2030.

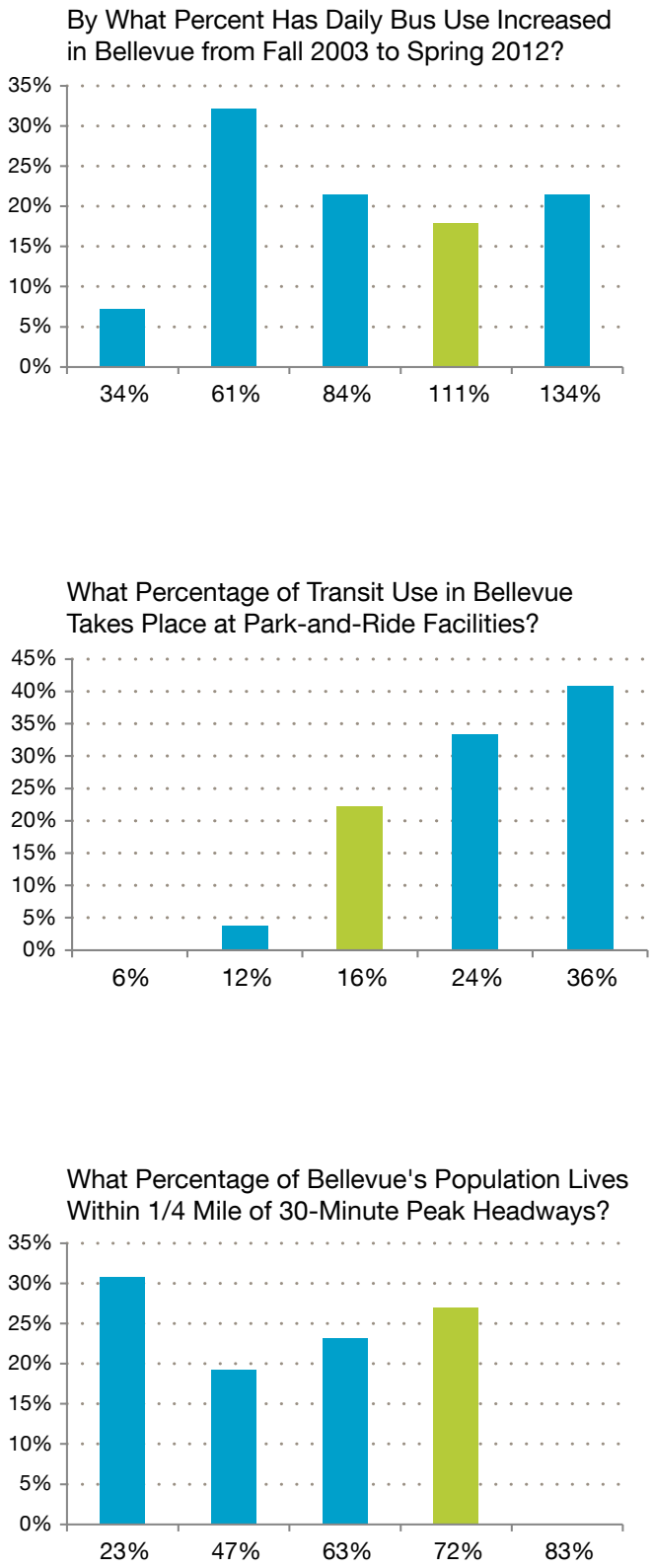
On January 31, 2013, the City invited various transit officials, board and commission members, and other local stakeholders to reflect on some of the work done so far and to brainstorm what corridors should be prioritized in the 2030 network and what frequency of service should be allocated to each. Participants were seated in six self-selected groups, with the only stipulations being that the transit professionals in attendance arrange themselves such that one was present at each table, while others were asked to sit separately from close colleagues to promote conversations with diverse perspectives. Poster boards were on display during the event so participants could consider various demographic characteristics in Bellevue, the present distribution of access to service in Bellevue, and some highlights from earlier outreach efforts. Packets were also distributed to each attendee that included the TMP's Project Principles and maps depicting recent (Spring 2012) and future projected (2030) boarding and alighting activity by Mobility Management Area (see Appendix 1 on page A32). Additionally, participants used keypad polling at various points during the workshop to articulate their preferences among competing priorities. Attendees also engaged in a mapping exercise to brainstorm what corridors should be prioritized in Bellevue's 2030 network.

BACKGROUND

A presentation opened the event by contextualizing the importance of transit to urban mobility generally and to Bellevue specifically (see Appendix 2). The presentation provided an overview of the ongoing Bellevue Transit Master Plan process and examined current trends in the operation and use of transit in Bellevue and projected future needs. Participants were polled anonymously about their knowledge of some of these topics, including the percentage of daily commute trips in Bellevue made by transit, the increase in daily bus use between Fall 2003 and Spring 2012, the percentage of boardings in Bellevue taking place at Park-and-Rides, the percentage of the population within one-quarter mile of 15- and 30-minute service headways, and the costs of operating conventional and DART transit van vehicles annually.

While a plurality of participants correctly identified transit's share of Bellevue's daily commute trips at 12 percent, participants generally underestimated the extent to which transit use in the city had grown since 2003, underestimated the percentage of the population that lives within one-quarter mile of 30-minute service during the peak, and overestimated the percentage of Bellevue's transit boardings that take place at Park-and-Ride facilities (see Figure 1 for selected polling results; complete results are available in Appendix 2).

Figure 1 Selected Audience Polling Results



Note: Percentages on the x-axis represent answer selection options, while those on the y-axis represent participants' responses. Green bars indicate the correct answer.

Figure 2 Participants cast their votes using keypad polling devices.

Most participants also greatly underestimated the cost of operating a conventional bus for one year. These results revealed a variety of pre-conceived notions and misunderstandings about transit service in Bellevue—for example, the belief that transit use in Bellevue is more significantly comprised of the Park-and-Ride commuter market than it actually is—providing useful insight for participants to consider.

Following this review by staff (see Figure 3), project consultant Jarrett Walker explained the transit network design exercise that attendees subsequently took part in. Each table was provided with a packet of four variously-colored post-it flags, each representing one half-mile of transit service of varying frequencies (see Figure 4 for details). Participants were provided with limited resources—12 miles of 7-minute service and 24 miles each of 15-, 30-, and 60-minute service—which they were asked to allocate as they deemed appropriate for Bellevue's 2030 local transit network. Groups were allowed to trade resources of low-frequency service for higher-frequency service (and vice versa) according to the exchange rate implied by the relative frequencies (e.g. one-half mile of 15-minute service is equivalent to one mile of 30-minute service).

Each of the six tables was provided a large-scale map of Bellevue and its vicinity, including the downtowns of both Redmond and Kirkland (see Figure 6 on page 12). Jarrett explained that the extents of the map were selected to reflect the reality that although the Bellevue Transit Master Plan will specifically plan only for transit services in Bellevue, the relationship of these three major Eastside communities is such that their transit situations are closely interwoven. Therefore, while participants were asked to focus on designing Bellevue's local 2030 transit network, they were encouraged to consider services operating between these three communities as a part of their vision.

Figure 3 Franz Loewenherz, Senior Transportation Planner and Transit Master Plan project manager, notes the many varied benefits provided by high-quality transit.

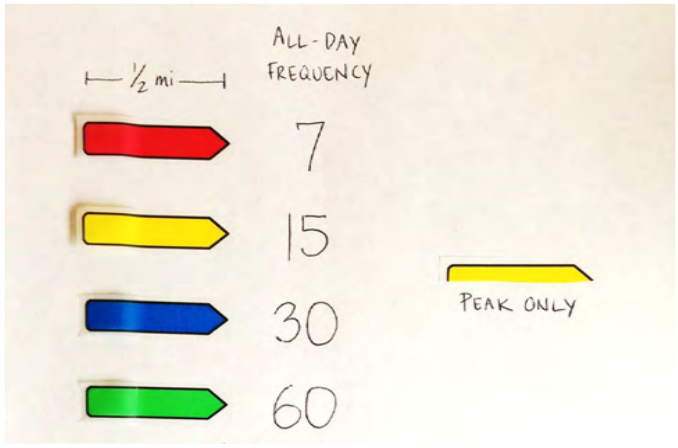
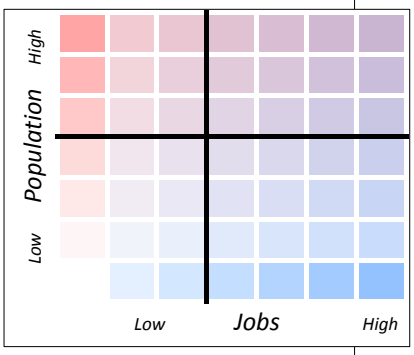
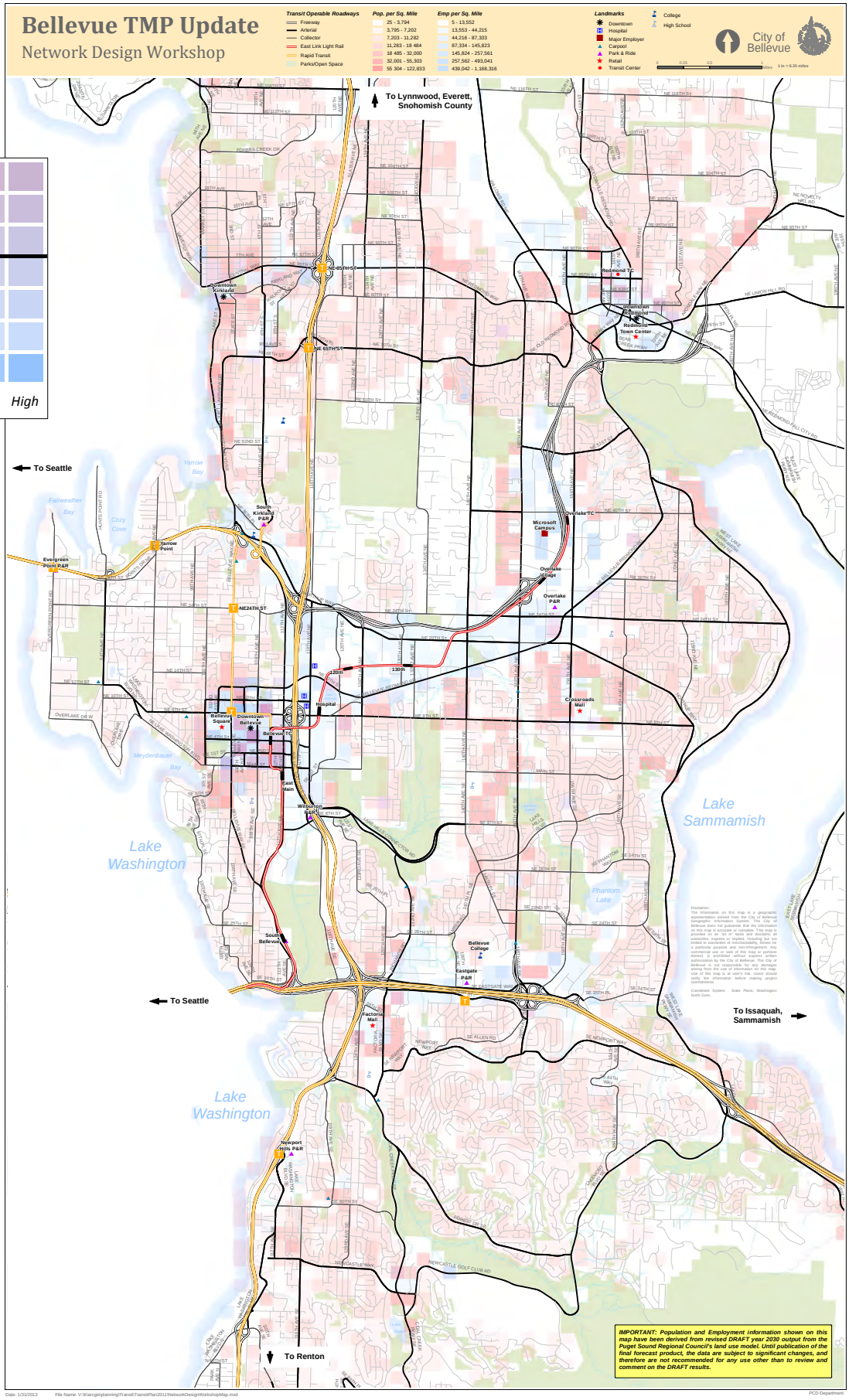


Figure 4 'Rules' of the network design exercise.

Figure 5 Participants contemplate how to allocate the transit service resources they were provided.

Figure 6 Map of Bellevue and Vicinity. Each table was provided with a large-format version of this map on which to allocate transit service for Bellevue's 2030 local network. Red and blue shading represents the concentration of population and jobs, respectively, as indicated in the key at the top of the map and the supplementary graphic below at left.



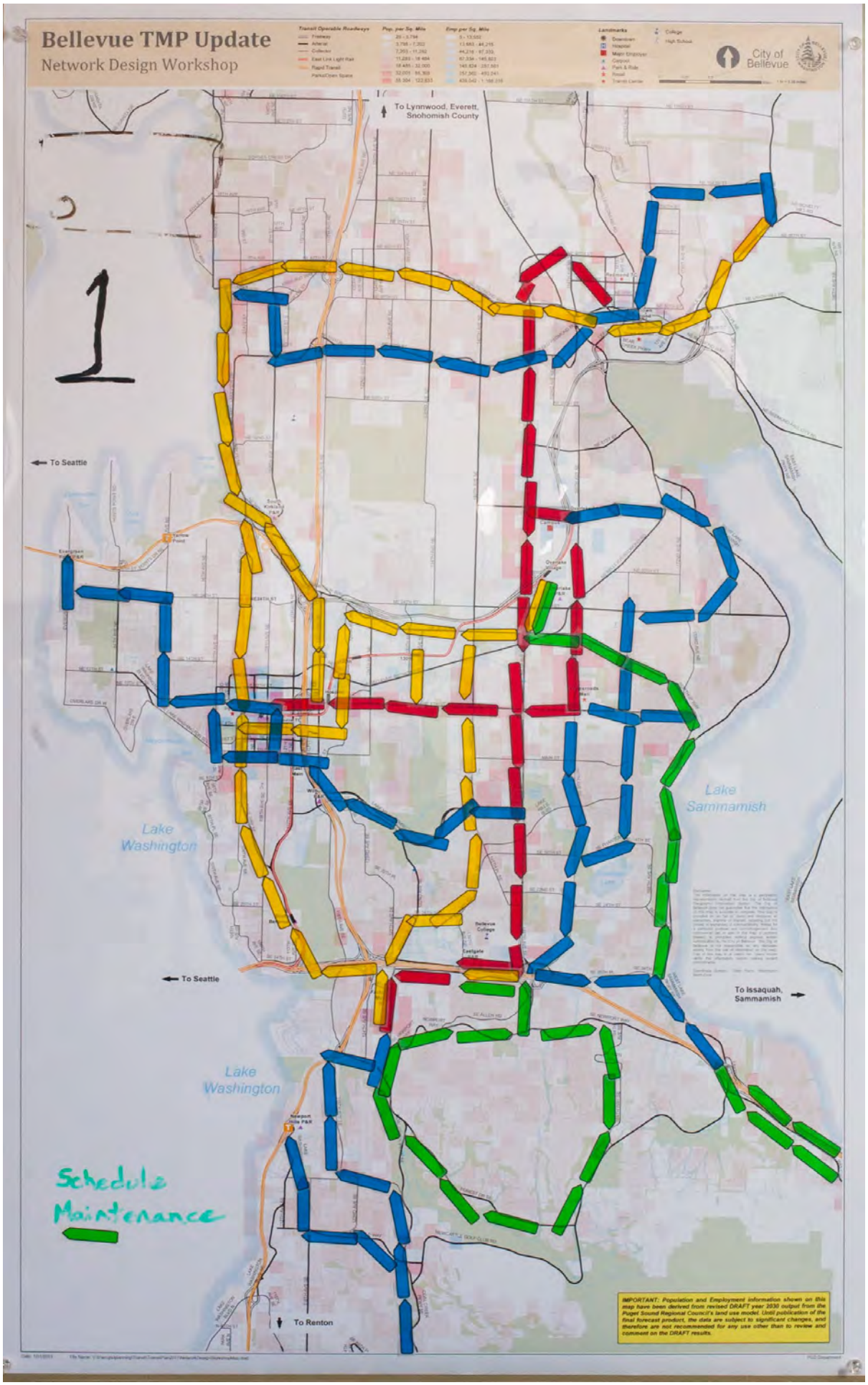


To further ensure that the focus of the exercise remained the design of Bellevue's *local* 2030 transit network, participants were asked to assume that frequent regional services were already provided along area freeways, including service on I-90 and SR-520 to Seattle and along I-405 north to Snohomish County and south to Renton and South King County. The East Link light rail alignment was also included on the map, as this service is expected to begin operation in 2023.

NETWORK DESIGN EXERCISE

When the network design exercise began, each group approached their task a bit differently. Some groups quickly took to the provided markers and began circling major centers of activity, employment, and population, while others were more reserved and deliberative. One group began by discussing important local axes of movement, identifying Eastgate-to-Redmond and Downtown-to-Crossroads as the area's major north-south and east-west axes, respectively. Another group discussed early on what gaps exist in the current transit network and whether these were logical places for service to be more limited. Several groups were quick to begin placing transit service stickers, with 148th Avenue between Eastgate and Crossroads being the first service designated by multiple groups—each of them allocating 7-minute service.

While many points of similarity can be found among the various networks, so too can a host of differences. The processes followed and resulting networks designed by each group will be examined on subsequent pages, followed by a discussion that summarizes the major similarities and differences between the various groups' networks and take-aways from the exercise.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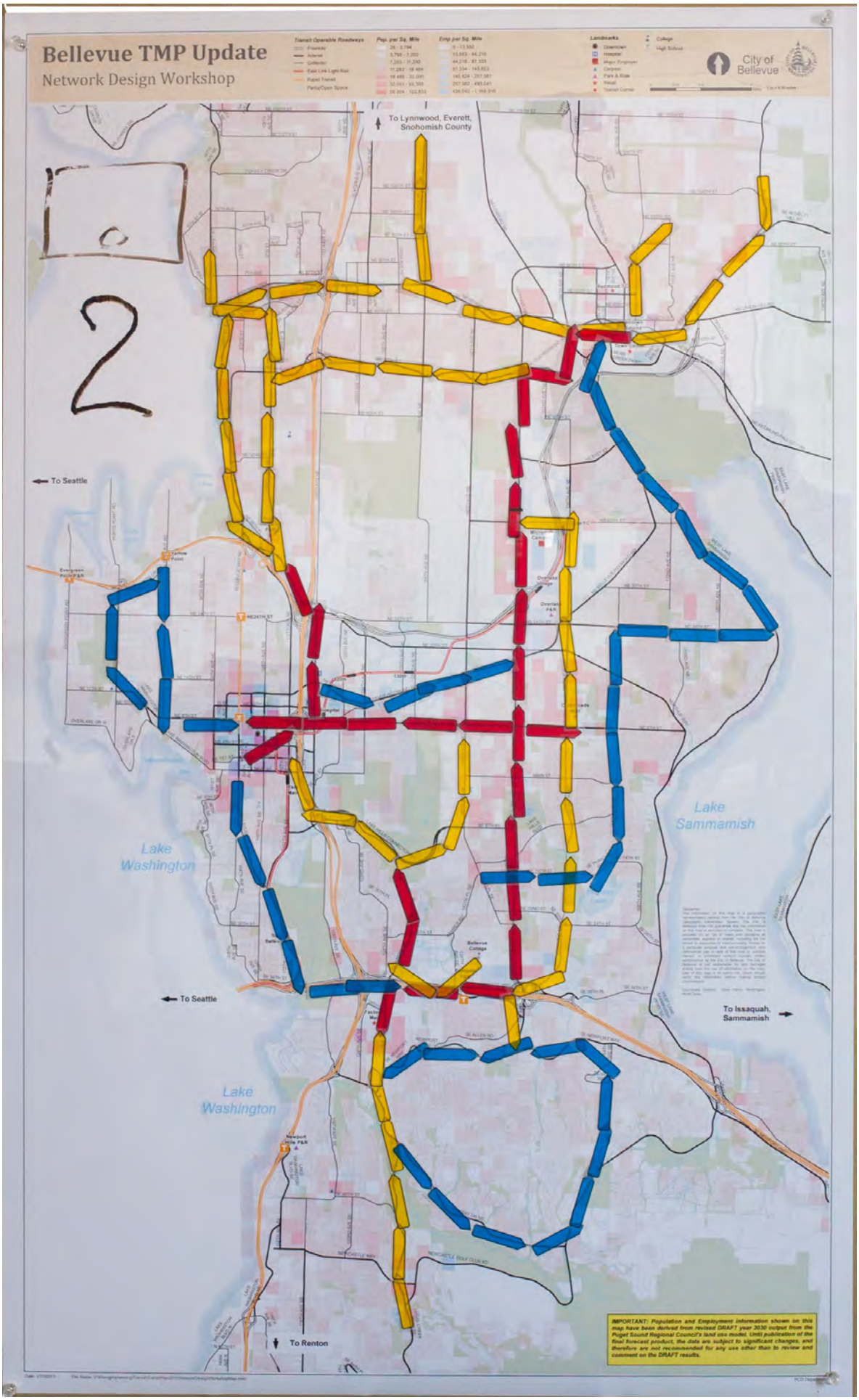
Schedule Maintenance
IMPORTANT: Population and Employment information shown on this map have been derived from revised DRAFT year 2030 output from the Puget Sound Regional Council's land use model. Until publication of the final forecast product, the data are subject to significant changes, and therefore are not recommended for any use other than to review and comment on the DRAFT results.

Group 1

Participants in Group 1 began by considering density—especially that of employment—and they concentrated on providing frequent (7-minute) service to dense areas including Eastgate, Crossroads, Overlake, and the downtowns of Bellevue and Redmond. Quickly recognizing the importance of north-south travel between Eastgate and Crossroads, this was the first group to allocate 7-minute service between these destinations—in this case along 148th Avenue. This line was later extended to also provide 7-minute service between Eastgate and Factoria.

The group described their first priority as linking primary activity centers and park-and-rides with future East Link light rail stations. A secondary concern was to provide as much coverage as possible with remaining resources and as warranted by residential densities. Every instance of 30-minute service allocated to lower-density residential neighborhoods—such as East Bellevue, West Lake Sammamish, and Somerset—was designed to feed into higher-frequency services, encouraging connections and avoiding service duplication.

The group noted that they considered the Crossroads/Overlake area to be a nexus of activity where other services should come together, as reflected by their exclusive allocation of 7-minute service to routes passing through this area. The group created what is effectively a 7-minute service couplet along 148th and 156th Avenue NE between Crossroads and Overlake, and while three of the five other groups designed a similar pattern, only one other group assigned 7-minute headways to all portions of the couplet.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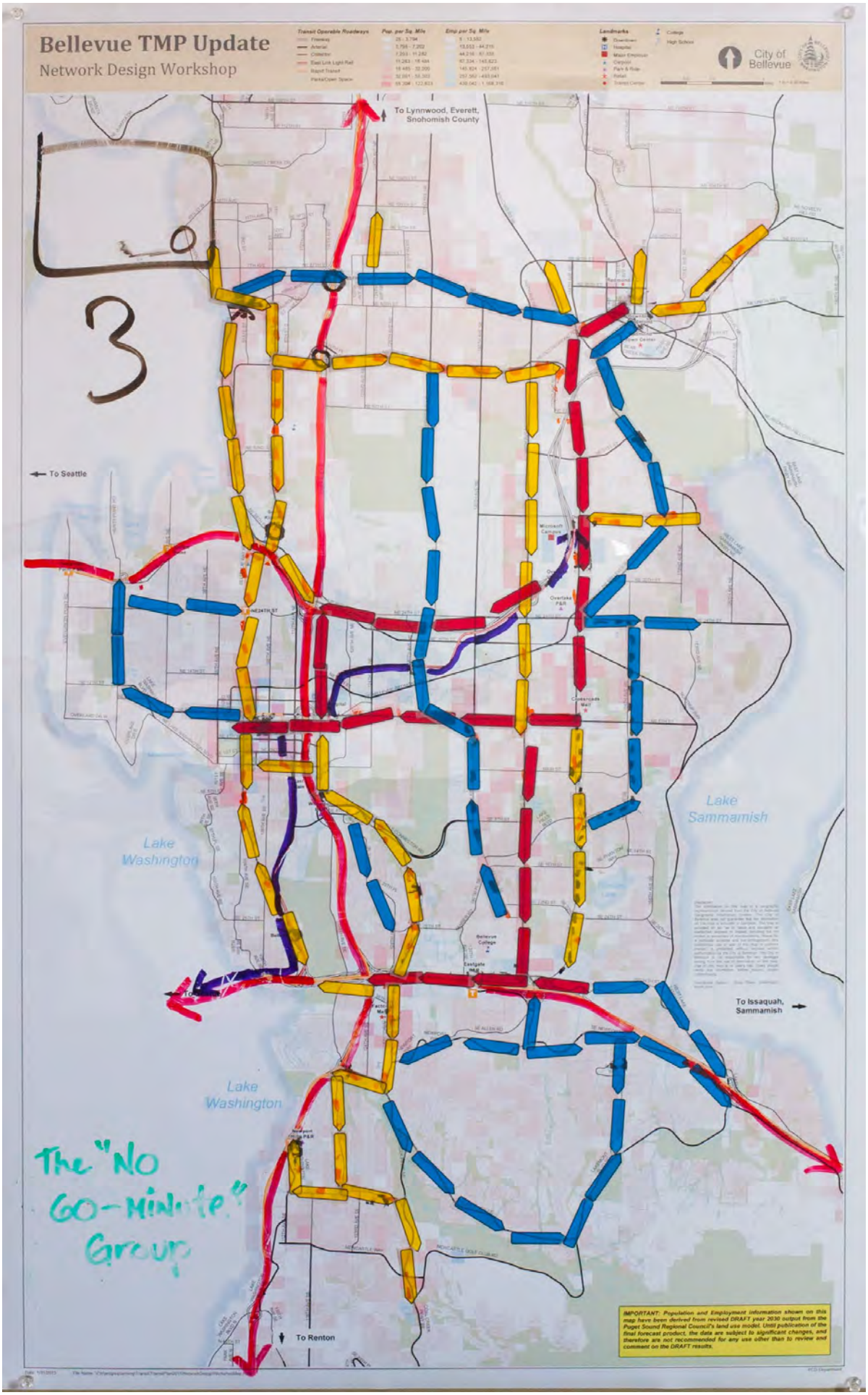
Group 2

Like Group 1, participants in Group 2 also began by considering major centers of activity, but they deliberated considerably longer before beginning to allocate service, and they framed their conversation somewhat differently than did other groups. Although employment was recognized as one of the more significant generators of transit ridership, Group 2 also emphasized the importance of providing transit to social service organizations and other non-work destinations so that they could be easily reached by people with limited mobility options.

Group 2 also began with service between Eastgate and Crossroads along 148th Avenue as the first service they allocated. In fact, a comparison of the maps designed by Groups 1 and 2 reveals that the two came to similar conclusions about how services between Eastgate, Crossroads, Downtown Bellevue, and Redmond should be allocated. The most significant difference between this aspect of the two groups' networks is that Group 2 provides only 15-minute service between Crossroads Mall and Overlake.

Also notable is Group 2's deliberate avoidance of allocating 60-minute service, which they deemed too infrequent to be useful. As such, the group chose to trade in all of their 60-minute service in favor of higher-frequency services, which two other groups also elected to do. However, Group 2 was the only group not to allocate any of its resources to serving the south end of West Lake Sammamish Parkway or the Newport Hills neighborhood.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The "NO 60-Minute" Group
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Group 3

Participants in Group 3 adopted a different approach than the first two. It was the only group to begin by allocating 15-minute service between all of the major activity centers, instead of 7-minute service as other groups did. After this framework was established, participants then discussed which corridors might warrant improved service and assigned 7-minute frequencies as they deemed appropriate. Despite this, many of the most frequent services they allocated are not significantly different from the designs of the first two groups.

As noted by other groups, a primary concern was connecting between park-and-ride lots and future East Link light rail stations. Participants claimed to attempt to avoid duplicating service that will be provided by East Link light rail, but the group decided that it remained appropriate to provide 7-minute service between Downtown Bellevue and Overlake along SR-520.

It was also noted that participants struggled with the neighborhoods of Bridle Trails, Cougar Mountain, and West Lake Sammamish, but they did not believe it was appropriate to abandon them entirely. Ultimately, the group decided to provide these areas of low residential density with 30-minute service, making them the only group to allocate service through the heart of the Bridle Trails neighborhood. Like Group 2, participants in Group 3 believed 60-minute service to be too infrequent to be considered useful, hence the reason why even these low-density, low-demand areas were allocated 30-minute service.


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Group 4

This group claimed to have gone through many revisions over the course of their network design process and admitted that, if given additional time, they may well have decided to revise it further. One of the first things the group did was specifically consider where current gaps in service exist and whether these are logical places for more limited transit service. The residential area east of 148th Avenue was one notable gap, generally deemed by the group to be appropriate given the area's low density. However, 148th Avenue itself was considered an important corridor for frequent transit service, and it was the first corridor on which the group placed service post-it flags.

The core of this group's network consists of 7-minute service that links Downtown Bellevue, Redmond, Kirkland, and future East Link light rail stations, as well as Eastgate and Bellevue College. Participants recognized that frequent service was presumed to be provided on highway corridors (as per workshop instructions), but they believed that frequent connections should also be provided between the various Eastside downtowns along arterial streets. Fifteen-minute service was allocated to other areas of reasonably high demand, and 30-minute service was then added to function as feeder service to higher-frequency routes.

In stark contrast to Group 3, participants in Group 4 did not believe it appropriate to provide fixed-route services through neighborhoods like Cougar Mountain and West Lake Sammamish. Instead, they repurposed half of their 60-minute resources as DART service—which they indicated on their map by arranging the post-it flags in the shape of plus signs—and allocated it to these low-density residential areas.


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BIG RED
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Group 5

Of the six networks, the network designed by Group 5 is perhaps the most distinctive. This was the only group to avoid not only 60-minute service, but they also allocated nearly no 30-minute services, opting instead to focus specifically on providing the greatest amount of frequent service possible.

The group began by identifying two broad axes of movement along which they deemed frequent service to be important: north-south between Eastgate and Redmond, and east-west between Downtown and Crossroads. A 7-minute service similar to the RapidRide B Line was the first the group placed. This was followed by a line along 148th Avenue between Eastgate and Overlake, which was later extended to Factoria. By trading in all of their 60-minute resources and most of their 30-minute resources, Group 5 amassed significantly more 7-minute service than was available to other groups. As a result, while a line between Factoria and Kirkland via Bellevue Way SE and Downtown is also included in two other groups' networks, Group 5 was the only one with sufficient resources to allocate 7-minute service to this corridor.

Generally, the strategy pursued by participants in this group was to provide the 'least-path distance' between neighborhoods, centers, and East Link light rail stations. The result of this approach is a network whose design most closely approximates a grid—a geometrically ideal shape for efficient transit operations—at least to the extent possible given Bellevue's significant topography and non-gridded street network. Although Group 5 came to many of the same conclusions as others about which areas not to serve, their emphasis on high-frequency service results in less coverage and larger areas lacking service than other groups.


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Group 6

Participants in Group 6 began by circling major activity centers in and around Bellevue, including Downtown, Eastgate, Overlake, and the Bel-Red corridor. In particular, participants emphasized the importance of connecting residents to jobs and business centers to East Link light rail stations. Where feasible, the group generally attempted to create routes in looped patterns—a characteristic unique to this group's network design. Among these is a frequent circulator in Downtown Bellevue, meant to help people easily travel around Bellevue's central business district. This was the only group to specifically propose such a route.

Aside from this downtown circulator, the only other 7-minute service allocated by Group 6 was the first route that they identified, which connects Eastgate to Crossroads, Redmond, and Kirkland similar to the current Route 245. Notably, this was the only group that did not allocate 7-minute service between Downtown Bellevue and Crossroads. Instead, users of this network would either take 15-minute service directly between these centers, or they could take East Link to the Overlake Village Station and transfer to 7-minute service on 148th Avenue or 15-minute service on 156th Avenue. Groups 6 and 4 were the only two that did not provide a direct connection of any frequency between Downtown Bellevue and Kirkland.

Also, Group 6 was the only group to identify peak-only service, which participants allocated to Factoria (7-minute) and East Bellevue along 164th Avenue (15-minute). The green 60-minute service lines included on the map in areas east of 148th were meant to denote demand-responsive service, making this one of only two groups to propose variable-route services in their network design.

DISCUSSION

The network design breakout session lasted for just under two hours, after which the entire group in attendance was reconvened to collectively examine one another's maps, share insight about discussions that took place within each group, and reflect on the outcomes and take-aways from the workshop. One representative from each group was given the opportunity to briefly describe the process that lead to their network design, the main points of which are addressed on the preceding pages. After each group had spoken, project consultant Jarrett Walker summarized his observations of the similarities and differences apparent in the various groups' network designs.

Figure 7 Jarrett highlights how the networks designed by Groups 5 and 6 demonstrate the trade-off between providing a grid of frequent service and widespread coverage with infrequent service, respectively.

Common Themes

Jarrett began by noting that a significant level of agreement was reached on a number of issues. For example, all participant groups designed their network maps by planning around major activity centers and high-density hubs of employment. These included regional destinations like the downtowns of Bellevue, Redmond, and Kirkland, and neighborhood centers like Crossroads, Eastgate, and Factoria. All groups cited these land use conditions as the primary consideration in building a core network of frequent services that connected these areas. More specifically, Jarrett noted that every group agreed that the 148th/156th Avenue corridor represents one of the city's major north-south axes, and every group allocated 7-minute service to one of these streets or the other—or both, in the case of two groups, between Crossroads and Overlake. Similar, though not quite unanimous agreement was likewise reached about NE 8th Street, on which all but one group allocated 7-minute service. The one outlier allocated 15-minute service there, which is still generally considered to be 'frequent'.

As a result of the locations of these centers, local geographic challenges, and Bellevue's non-gridded street network, a vague 'doughnut' shape of transit services emerged to varying degrees within Bellevue among all the groups. That is, all groups designed networks that connect Downtown, Factoria, Eastgate/Bellevue College, and Crossroads, creating a ring of transit lines around a sparse or empty center. Related to these geographic challenges, Jarrett pointed to the Eastgate–Factoria corridor as an example of how transit service can be affected on a more localized level. While all but one group allocated 7-minute service between these two destinations, some proposed routing service along the frontage road

north of the Interstate 90, others along the south side, and still others avoided the difficult decision by keeping things conceptual and indicating that the route travel straight down the highway. Ultimately, the highway functions as a barrier that makes the area difficult to serve elegantly with transit by its nature, and the various ways that groups approached the provision of this common connection highlights the complexity of this challenging location.

Notable Differences

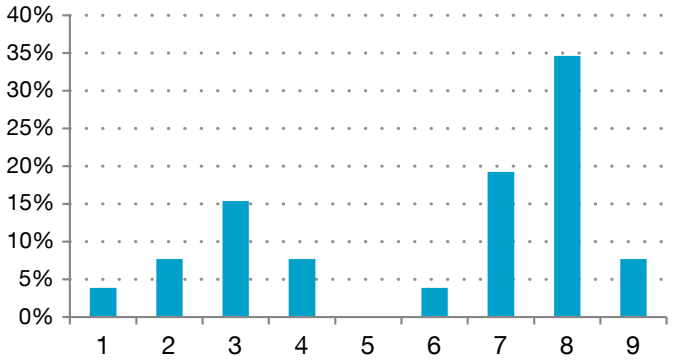
While all groups built their network designs from the principle of providing frequent core services that connect major activity centers, designs varied greatly in terms of the routing and headways allocated as lines emanate out from the common corridors and nodes. For example, while similarities abound in Crossroads, Eastgate, and to a lesser extent in the Bel-Red Corridor, no two groups dealt with neighborhoods east of 156th Avenue in quite the same way. Group 5 provided 15-minute service to some portions of east Bellevue—the most frequent to that area of any group—but allocated no service to other portions, while other groups provided 30-minute service, peak-only service, or suggested offering only DART service to these neighborhoods. These differences in how low-density residential areas are served highlight the tension that exists between ridership-oriented systems and coverage-oriented systems. Jarrett noted that the networks created by Groups 5 and 6 demonstrate opposite perspectives on this trade-off particularly clearly.

Indeed, the network designs created by participants at this workshop ranged from an almost complete elimination of coverage-oriented services to geographically extensive routing that serves virtually every neighborhood in Bellevue. Groups with coverage-oriented designs relied primarily on a

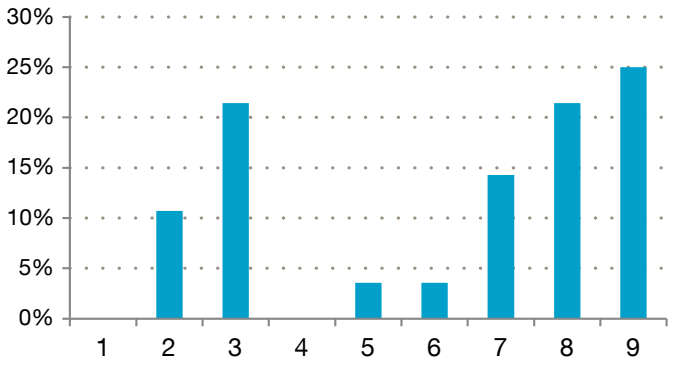
combination of infrequent transit and specialized demand-response services to expand geographic coverage and minimize walking distances for riders. In contrast, ridership-oriented designs focused resources primarily along high-demand corridors, promoting a network of services that are sufficiently frequent to encourage longer walking distances to stops. A key difference between these two ends of the spectrum is that while coverage-oriented systems provide greater access to transit closer to each person's home, and they appear to offer a greater number of intersecting points on a map, ridership-oriented systems are able to offer more frequent services and hence provide more opportunities to connect between different lines and destinations in aggregate over time. Because of these differences, Jarrett noted that services that promote coverage and ridership should be considered in different contexts, as they pursue different goals. Ridership networks seek to achieve the maximum ridership possible, which tends to also provide the highest level of farebox recovery and best meet transportation-related sustainability goals. By contrast, coverage networks are not pursued for the purpose of efficiency or productivity, but rather to provide a social service—a transportation alternative for those without a personal vehicle or who choose not to use one. These are distinctly different goals, and the extent to which each is pursued depends on the values and resources of the community. The various networks designed at this workshop suggest that participants' views on the subject are not in unanimous agreement, as some groups were more comfortable with excluding some areas from service than were others.

Figure 8 Post-Workshop Audience Polling Results

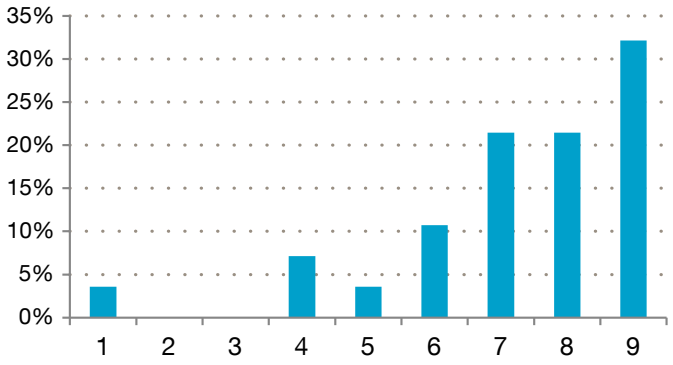
Should investment focus on peak period commuter service, or on building a network that runs all-day?
(1 is 'Peak-Oriented', 9 is 'All-Day Service')



During peak periods, should we focus on running direct service from many places to each commute destination, or can we ask people to transfer?
(1 is 'Avoid Transfers', 9 is 'Encourage Transfers')



Should we focus more on investments that make service more attractive to higher-end markets or focus on making service as abundant as possible?
(1 is 'Premium Service', 9 is 'Abundant Service')



CONCLUSION

Before the workshop was adjourned, a final round of polling took place to see how the network design exercise might have impacted participants' perspectives on transit service in Bellevue. Whereas the first round of polling sought to identify what people knew of existing operations, this round of questions attempted to determine whether any consensus had developed about what priorities Bellevue's future transit network should pursue. The charts in Figure 8 depict the results of the five questions posed. A clear consensus was reached on some of the questions—for example, most participants agreed that providing abundant service is more important than offering 'premium' service—but some polarization remains in terms of other issues. For example, while a larger share of participants support an emphasis on providing all-day service with supplementary peak service, a notable minority indicated a preference for emphasizing peak-only commuter services and minimizing off-peak service. Likewise, while more than half of the participants would encourage transferring to foster a more frequent and more connective network, more than one-quarter wish to provide more direct point-to-point services that do not require transfers, even though this requires service to be less frequent. Participants indicated that it would be acceptable not to provide service to between 25 and 35 percent of Bellevue's population if it would result in a more useful, better-performing network for users overall.

These insights into participants' priorities for frequency, coverage, span, and the many various concepts for how to connect Bellevue's centers of activity, its neighborhoods, and the forthcoming East Link light rail with a robust bus transit system will be considered by the City of Bellevue and its consultant when designing the future transit networks that are proposed by the Transit Master Plan.

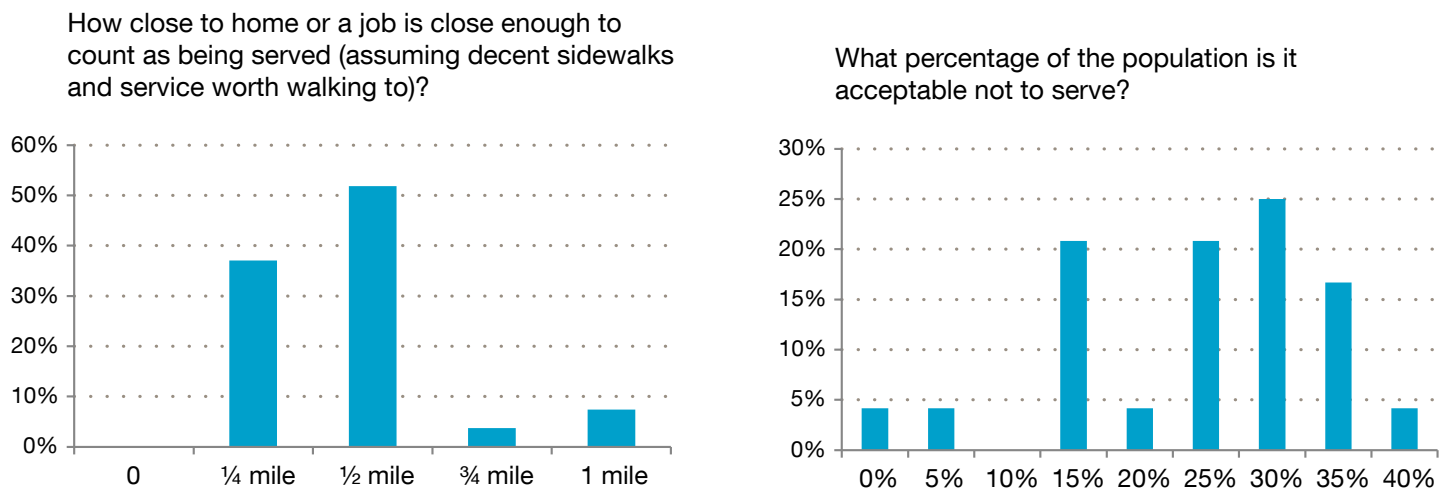
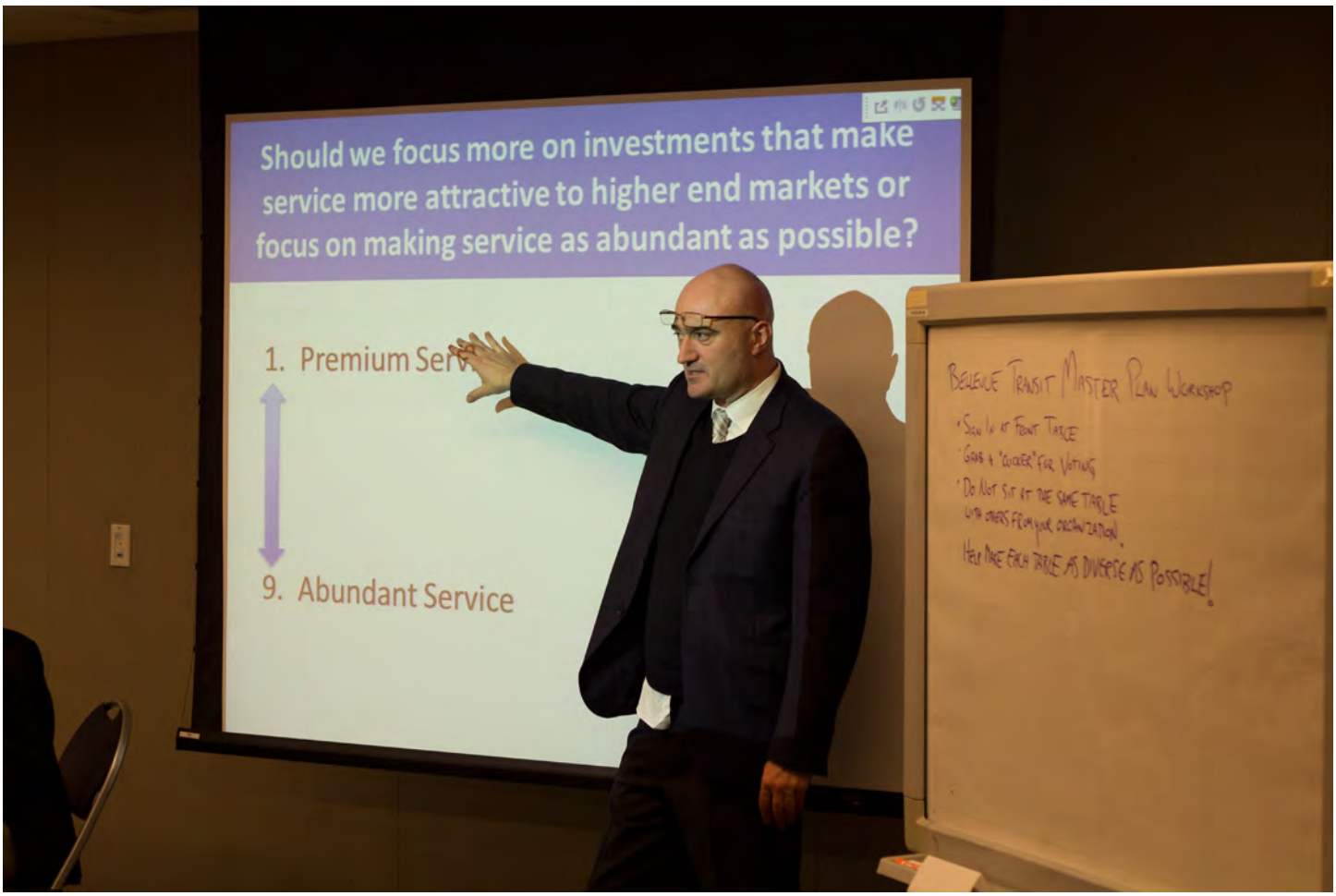


Figure 9 Jarrett prompts participants in the workshop's final audience polling session. In this case, the choice is between 'premium service', which he defines as more limited service that emphasizes comfort and luxurious amenities, and 'abundant service', which he defines as the widespread deployment of more basic services. Participants expressed an overwhelming preference for service that emphasizes abundance over luxury.



APPENDICES

Appendix 1 Participant Packet

Bellevue Transit Master Plan

AGENDA

TRANSIT MASTER PLAN
NETWORK DESIGN WORKSHOP

Thursday, January 31 (from 1:00 to 4:30 PM)
City Hall Conference Room 1E-108

Welcome & Opening Remarks	**1:00 - 1:30**
Network Design Breakout	**1:30 – 3:15**
Debrief and Discussion of Exercise	**3:15 – 4:00**
So What Do You Think?	**4:00 – 4:30**

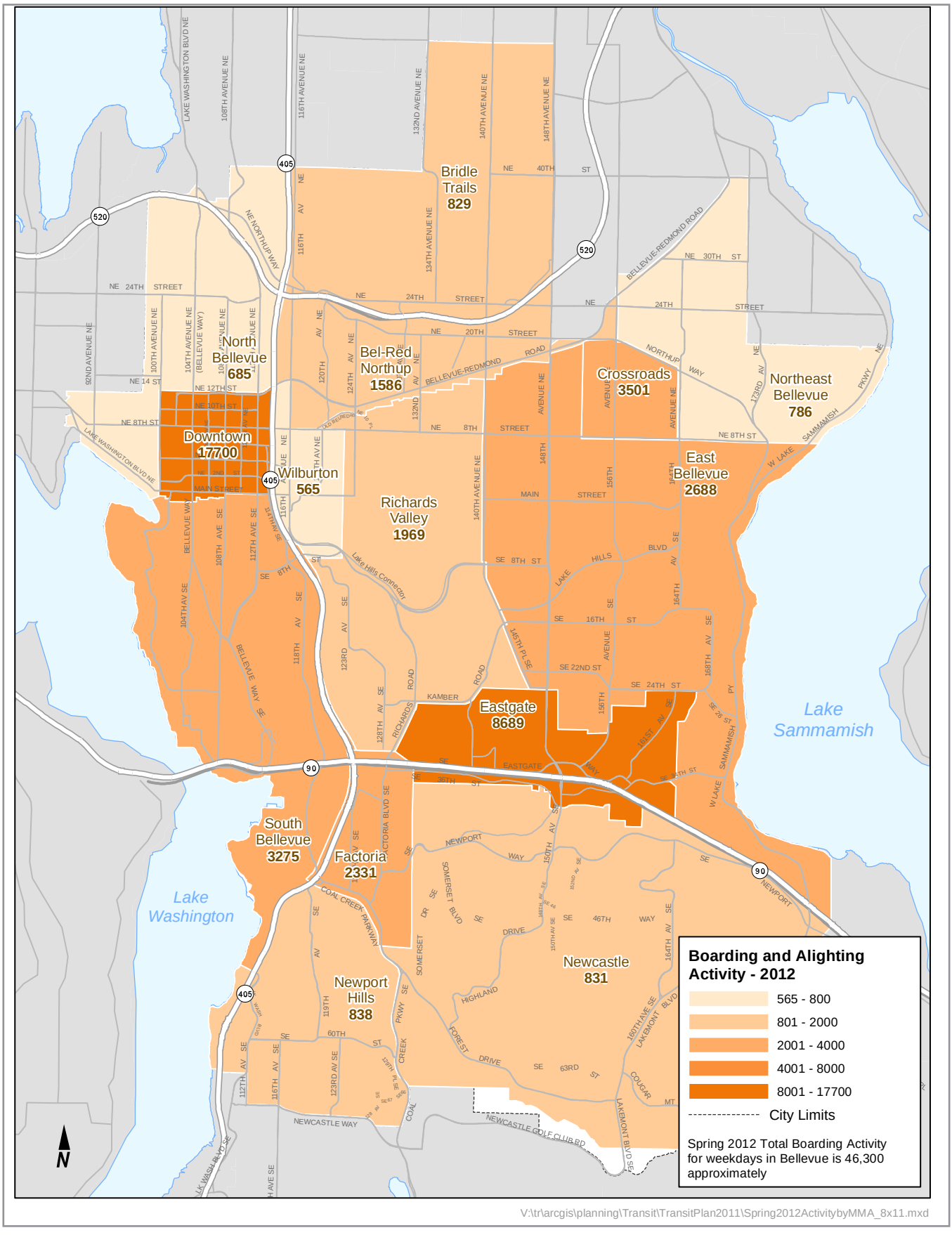
Bellevue Transit Master Plan

Project Principles

Approved July 9, 2012

The City Council envisions a fully integrated and user-friendly network of transit services for Bellevue that supports the city's growth, economic vitality, and enhanced livability, and has developed the following set of project principles to direct development of the Transit Master Plan.

1. Support planned growth and development in Bellevue with a bold transit vision that encourages long-term ridership growth.	The dynamic nature of Bellevue's economic expansion requires a bold transit vision supported by practical, achievable strategies in the near term that set a solid foundation for longer term improvements through 2030. The Transit Master Plan should identify, evaluate, and prioritize transit investments that are responsive to a range of financial scenarios (cuts/status-quo/aspirational) and attune to different time horizons (near/mid/long term).
2. Engage community stakeholders in setting the priorities for transit delivery.	A comprehensive public engagement strategy should result in meaningful input on transit services and facilities from a range of stakeholders including residents, businesses, major institutions, neighboring cities, transportation agencies, and others (e.g., community associations, Network on Aging, Bellevue School District, Bellevue College, Chamber of Commerce, Bellevue Downtown Association). Special attention will be required to enlist the participation of "under-represented" communities such as immigrants, low-income and non-native English speakers.
3. Determine where and how transit investments can deliver the greatest degree of mobility and access possible for all populations.	The Transit Master Plan should look to the future and be compatible with Bellevue's land use and transportation plans and the challenges and opportunities of changing demographics, land use characteristics, and travel patterns. Following consultations with the community, demand forecasting, and a review of industry best practices and emerging technologies, this initiative will identify the steps required to create a public transportation system that is easy to use by all people in Bellevue for trips within Bellevue and to regional destinations.
4. Incorporate other transit-related efforts (both bus and light rail) underway in Bellevue and within the region.	The Transit Master Plan should incorporate local and regional transportation projects and plans that have been approved and/or implemented since the Bellevue Transit Plan was adopted in 2003. Transportation system changes include East Link, SR 520 expansion and tolling, and improvements to I-90 and I-405. Planning changes include the updated Bel-Red Subarea Plan, the Wilburton Subarea Plan and the Eastgate/I-90 Land Use and Transportation Project. Through coordination with local and regional transportation plans, the Transit Master Plan should outline a strategy to leverage the investment in public transportation projects to the benefit of Bellevue residents and businesses.
5. Identify partnership opportunities to further extend transit service and infrastructure.	While transit infrastructure is typically funded through large capital funding programs, other less traditional funding mechanisms can be utilized to pay for improvements vital to support transit communities and/or achieve higher transit ridership. The Transit Master Plan should undertake an analysis of partnership opportunities that the City might want to consider with other government organizations (e.g., Bellevue School District, Bellevue College, Metro, Sound Transit), human service agencies, and private corporations, to improve transit service delivery in Bellevue. This analysis will explore alternatives to traditional transit service delivery.
6. Develop measures of effectiveness to evaluate transit investments and to track plan progress.	The Bellevue Comprehensive Plan presently includes the following metrics/benchmarks related to transit: (i) mode split targets within each of the City's Mobility Management Areas [Table TR.1 – Area Mobility Targets]; (2) transit service frequency improvement targets between Downtown, Overlake, Crossroads, Eastgate, and Factoria [TR.8 – 10 Year Transit Vision]; and, (3) guidance found in 44 transit-supportive policies. The Transit Master Plan will revisit these metrics, and where necessary, propose modifications to better reflect present and future conditions.



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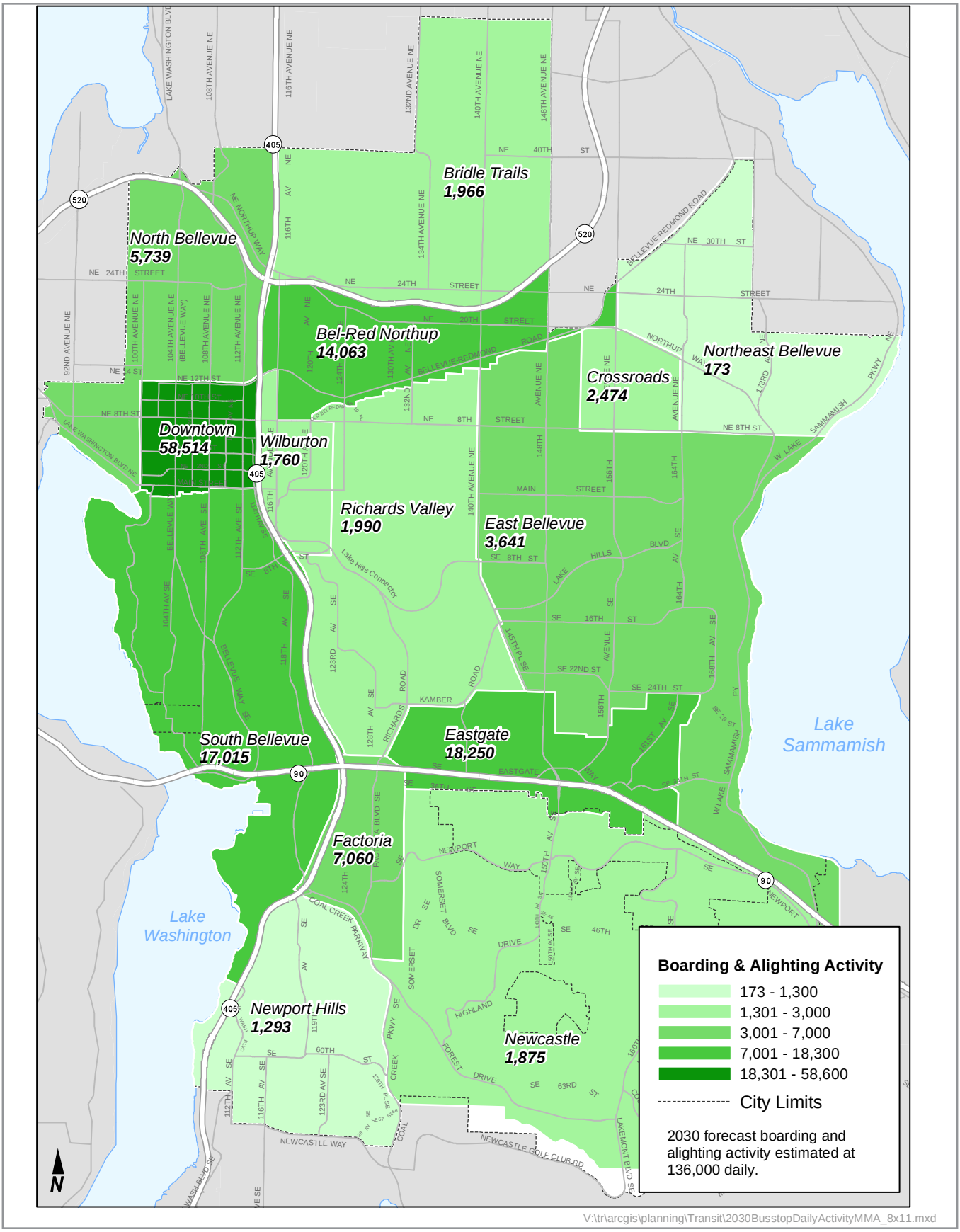
Bridle Trails
1,966
North Bellevue
5,739
Bel-Red Northup
14,063
Crossroads
2,474
Northeast Bellevue
173
Downtown
58,514
Wilburton
1,760
Richards Valley
1,990
East Bellevue
3,641
South Bellevue
17,015
Eastgate
18,250
Factoria
7,060
Newport Hills
1,293
Newcastle
1,875
Lake Sammamish
Lake Washington
Boarding & Alighting Activity
173 - 1,300
1,301 - 3,000
3,001 - 7,000
7,001 - 18,300
18,301 - 58,600
City Limits
2030 forecast boarding and alighting activity estimated at 136,000 daily.
N
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Bellevue Transit Master Plan

Transit Network Design Workshop
January 31, 2013

"Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or Post Office, go out to dinner and a movie, and play with your kids at the park – all without having to get in your car."

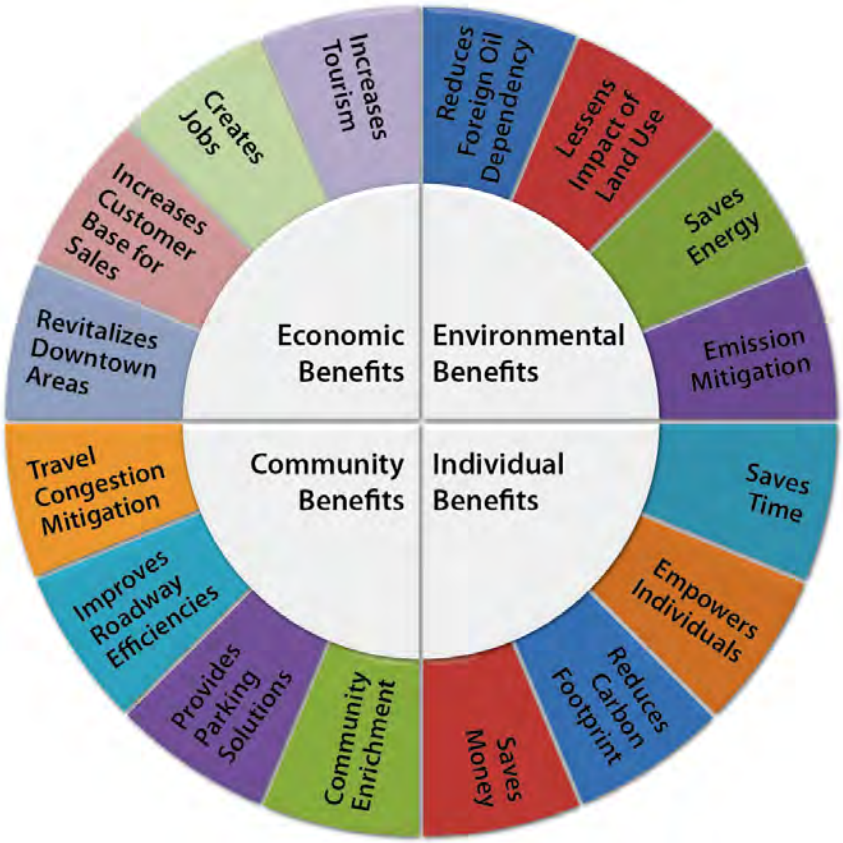
- Ray LaHood, United States Secretary of Transportation

2

"There's extreme competition for talent, so it's recruitment, retention. What you've got in downtown Bellevue is a critical mass. You've got housing, you've got restaurants, you've got retail, and you've got transit."

- Steve Schwartz, Director, Jones Lang LaSalle (The Seattle Times, 1/14/13)

3



4

"Support planned growth and development in Bellevue with a bold transit vision that encourages long-term ridership growth."

- Bellevue City Council, Project Principles (Approved July 9, 2012)

5

6

Corporations, Agencies, and Institutions

Riders, Former Riders, and Non-Riders

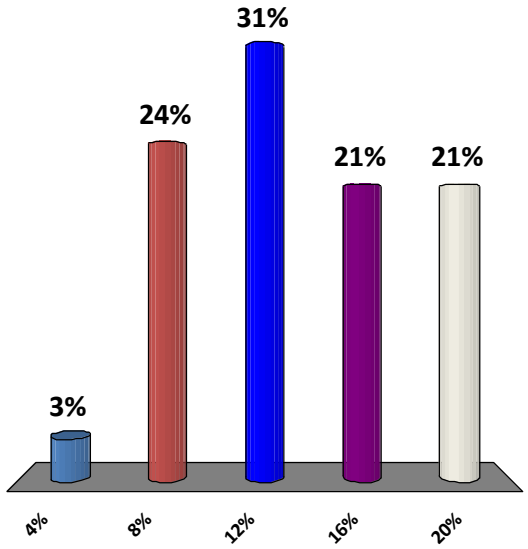
City of Bellevue Boards and Commissions

7

8

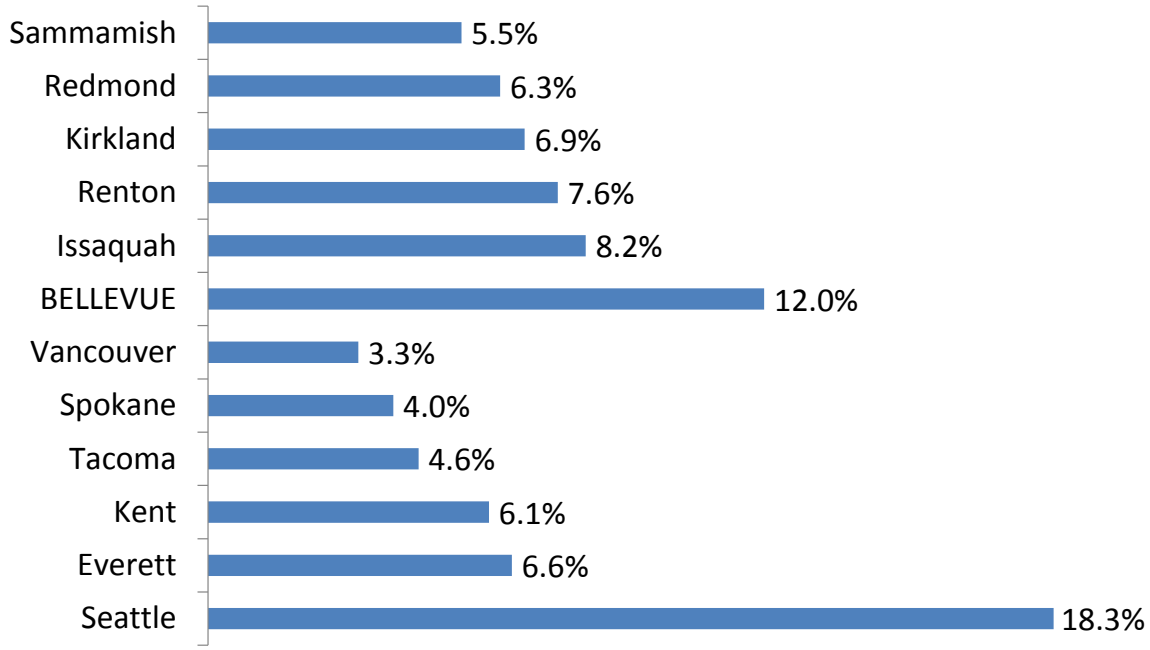
What percentage of commute trips in Bellevue are by transit?

1. 4%
2. 8%
3. 12%
4. 16%
5. 20%



9

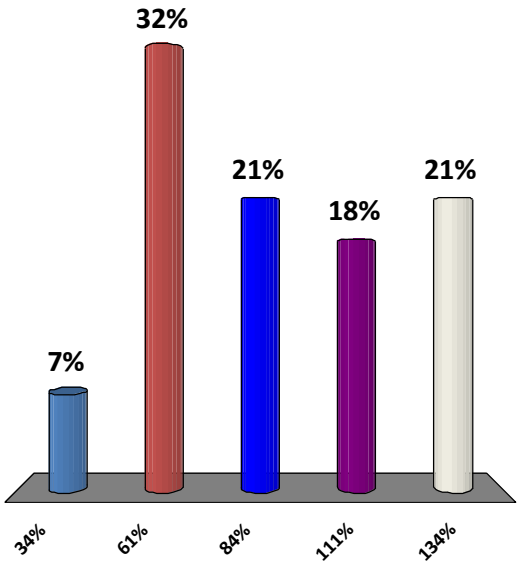
Percentage of Commute Trips by Bus in Eastside and Large Cities



10

What was the percent increase in daily bus usage in Bellevue from Fall 2003 to Spring 2012?

1. 34%
2. 61%
3. 84%
4. 111%
5. 134%



11

Transit Usage in Bellevue's Mobility Management Areas (MMA)

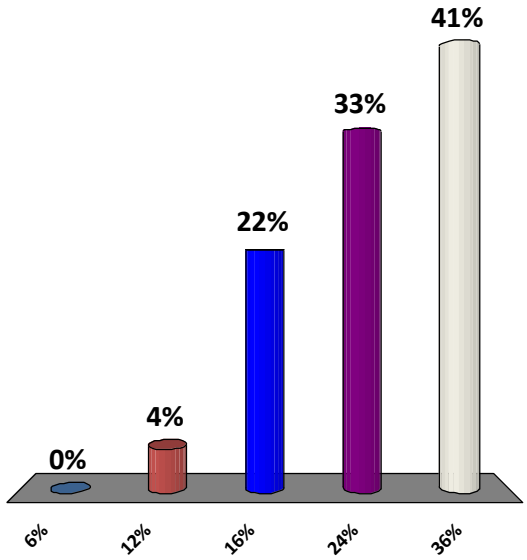
MMA	Fall 2003	Spring 2012	% Change
Downtown	7,346	17,700	141%
Eastgate	2,197	8,689	296%
Crossroads	1,706	3,501	105%
South Bellevue	2,908	3,275	13%
East Bellevue	1,695	2,688	59%
Factoria	1,724	2,331	35%
Richards Valley	1,301	1,969	51%
Bel-Red Northup	883	1,586	80%
Newport Hills	670	838	25%
Newcastle	384	831	116%
Bridle Trails	62	829	1,237%
Northeast Bellevue	532	786	48%
North Bellevue	512	685	34%
Wilburton	-	565	N/A
Total	**21,920**	**46,274**	**111%**

12

What percent of transit usage in Bellevue takes place at Park-and-Ride facilities?

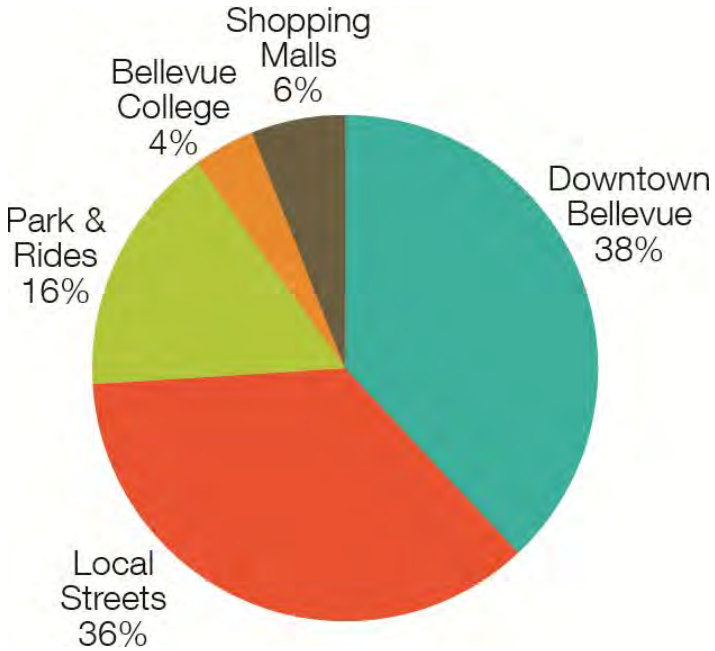
[Eastgate P&R; South Bellevue P&R; Newport Hills; Wilburton; Eastgate Direct Access Ramp]

1. 6%
2. 12%
3. 16%
4. 24%
5. 36%



13

Daily Transit Usage Patterns in Bellevue

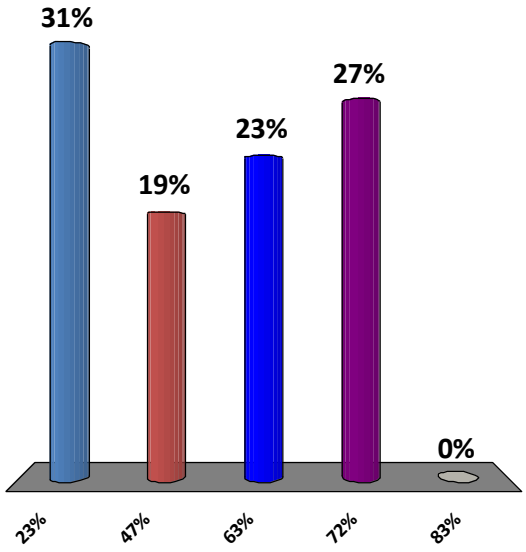


14

What percent of Bellevue's population (with ¼ mile of a stop) enjoys 30 min headways in the peak?

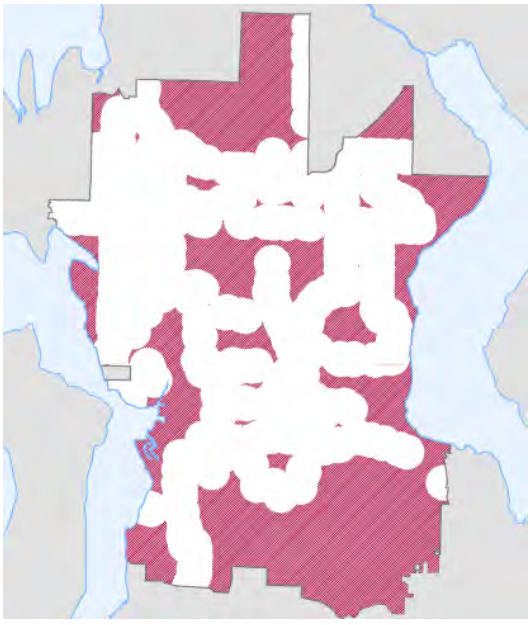
[Headway: The amount of time between consecutive trips in the same direction of travel.]

1. 23%
2. 47%
3. 63%
4. 72%
5. 83%



15

Areas in Bellevue Served by 30 Minute Headways in the Peak Period



Percent of population served:

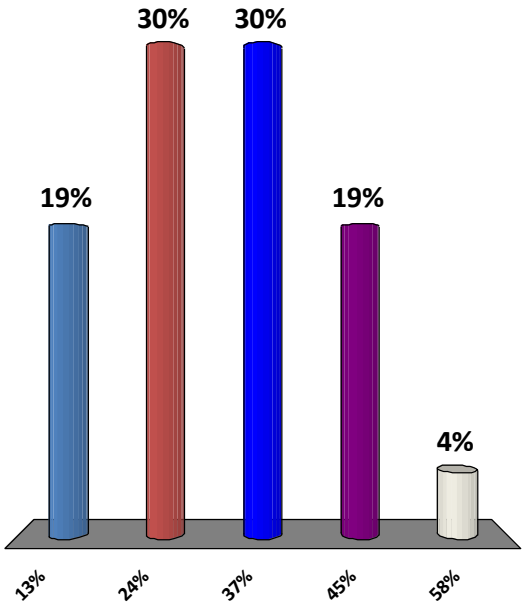
Residents - 72%
Older adults - 72%
Minorities - 75%
Speak language other than English - 87%
People in poverty - 83%
Affordable housing complexes - 88%
Major employers - 98%
Jobs - 92%

16

What percent of Bellevue's population (with ¼ mile of a stop) enjoys 15 min headways in the peak?

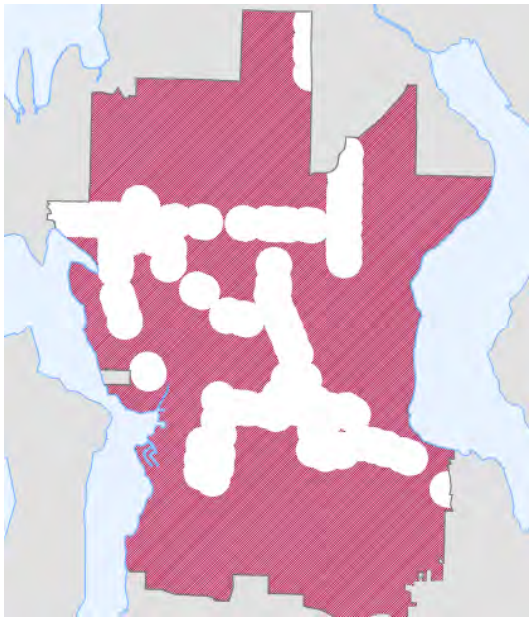
[Headway: The amount of time between consecutive trips in the same direction of travel.]

1. 13%
2. 24%
3. 37%
4. 45%
5. 58%



17

Areas in Bellevue Served by 15 Minute Headways in the Peak Period



Percent of population served:

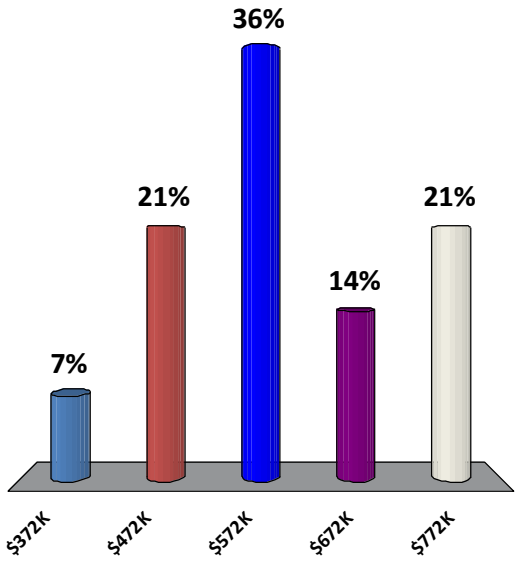
Residents - 37%
Older adults - 36%
Minorities - 42%
Speak language other than English - 56%
People in poverty - 51%
Affordable housing complexes - 56%
Major employers - 79%
Jobs - 63%

18

What is the cost to operate a conventional bus for one year?

[15 hours per day; 365 days per year]

1. $372K
2. $472K
3. $572K
4. $672K
5. $772K



19

Bus Operating Costs

[15 hours per day; 365 days per year]

In Service: 6 AM **Out of Service: 9 PM**

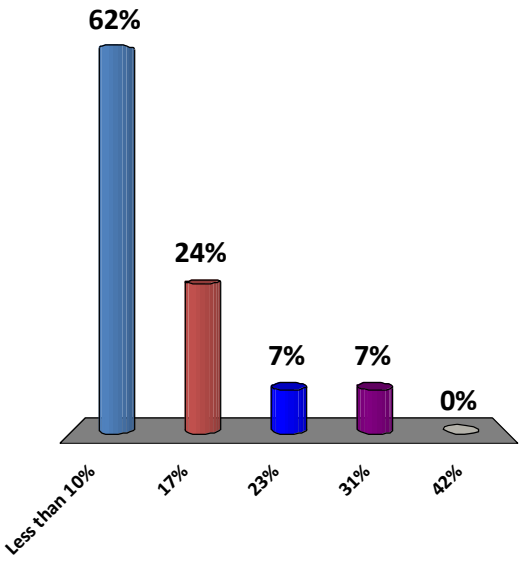
15 Hours per day	**15**	**15 Daily Hours**
365 Days per year	**5,475**	**Annual Service Hours**
$141/Service hour	**$772,000**	**Annual Operating Cost**

The cost to operate a conventional bus for one year is more than the cost of the bus itself.

20

How much cheaper is it to operate a van versus a 40’ bus in a defined service area?

1. Less than 10%
2. 17%
3. 23%
4. 31%
5. 42%



21

Case Study

Route 240 : Downtown Bellevue to Renton via Newcastle, Factoria

- **Boarding per Platform Hour = 22**
- **Cost per Boarding = $5.50**

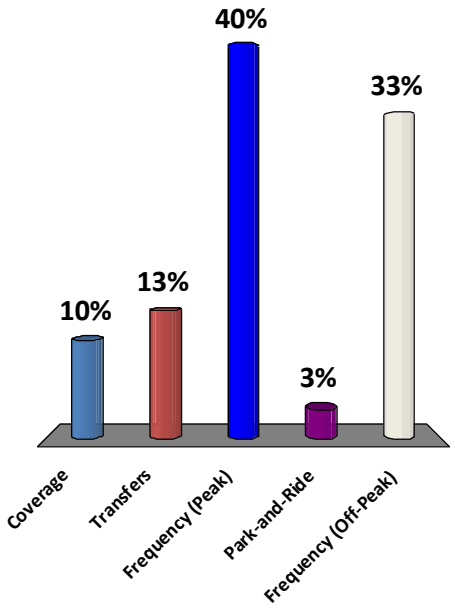
Route 925: DART service area of Newport Hills, Newcastle, and Factoria

- **Boarding per Platform Hour = 1**
- **Cost per Boarding = $135**

22

What is the number one requested improvement among current transit riders in Bellevue?

1. Coverage
2. Transfers
3. Frequency (Peak)
4. Park-and-Ride
5. Frequency (Off-Peak)



23

Priorities of Respondents Overall & Bellevue Residents Who Use Transit

	All		Bellevue Resident	
Quality of Service	Count	Percent	Count	Percent
Increase Frequency During Peak	643	33.2%	149	22.8%
Increase Frequency to Reduce Overcrowding	249	12.9%	74	11.3%
Increase Vehicle Capacity at Park & Rides	183	9.5%	65	9.9%
Other	168	8.7%	54	8.3%
Increase Frequency During Midday	152	7.9%	58	8.9%
Revise Schedules to Improve Connections	131	6.8%	44	6.7%
Expand Service Coverage in Bellevue	114	5.9%	71	10.9%
Install Additional Shelters	60	3.1%	30	4.6%
Increase Frequency on Weekends	50	2.6%	30	4.6%
Extend Service at Night on Weekends	48	2.5%	20	3.1%
Increase Frequency During Late Night	47	2.4%	22	3.4%
Expand ORCA Sales Locations in Bellevue	41	2.1%	18	2.8%
Extend Service at Night on Weekdays	32	1.7%	13	2.0%
Increase Bicycle Capacity at Park & Rides	18	0.9%	6	0.9%
respondents	**1,936**		**654**	

24

23,000

Increase in population between 2010 and 2030

- Bellevue PCD Department

25

54,000

Increase in jobs between 2010 and 2030

- Bellevue PCD Department

26


Meydenbauer Bay
N
Old Bellevue
Downtown Park
Bellevue Square
Bellevue Way
Compass Plaza
Main Street
NE 12th St
King County Regional Library
City Hall
Convention Center
I-405

27

28

29

1,219,965

2010 daily person trips to/from/inside Bellevue

- BKR travel demand model (MP0r12.1)

30

1,750,539

2030 daily person trips to/from/inside Bellevue

- BKR travel demand model (MP0r12.1)

31

46,300

Spring 2012 daily transit ons/offs in Bellevue

- King County Data

32

136,000

2030 daily ons/offs in Bellevue

- BKR travel demand model (platform MP30r6.2)

33

28,000

2030 daily ons/offs at Bellevue LRT Stations

- BKR travel demand model (platform MP30r6.2)

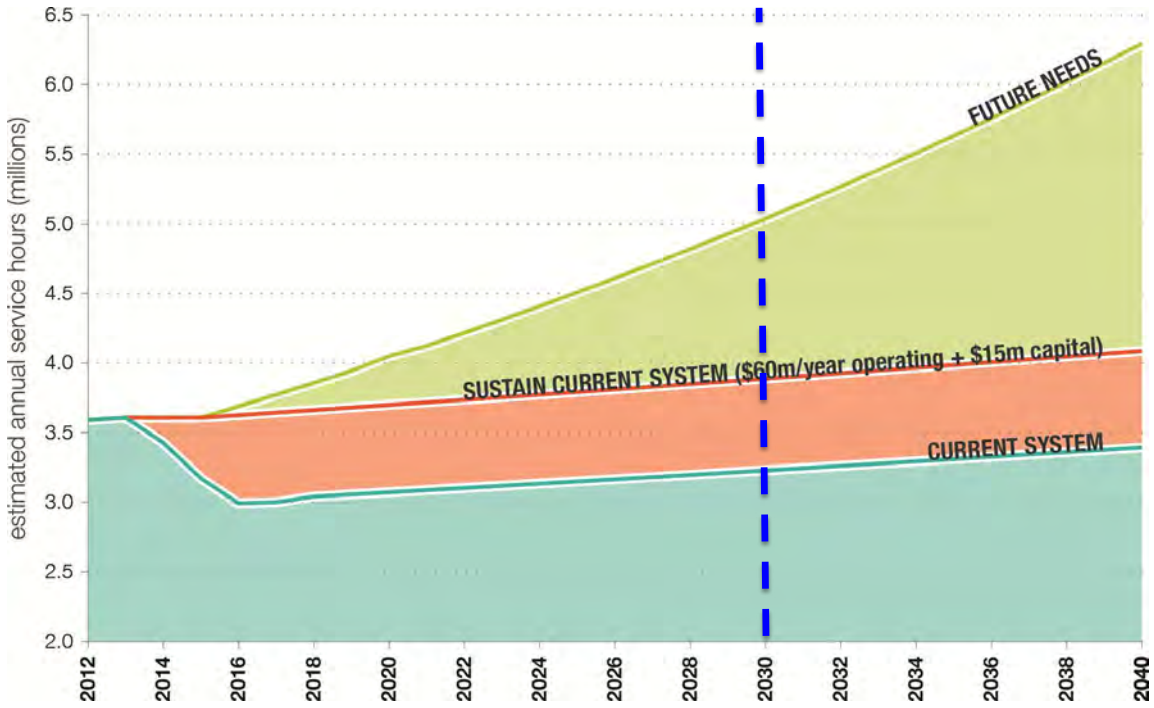
34

108,000

2030 daily bus usage (ons/offs) in Bellevue

- BKR travel demand model (platform MP30r6.2)

35



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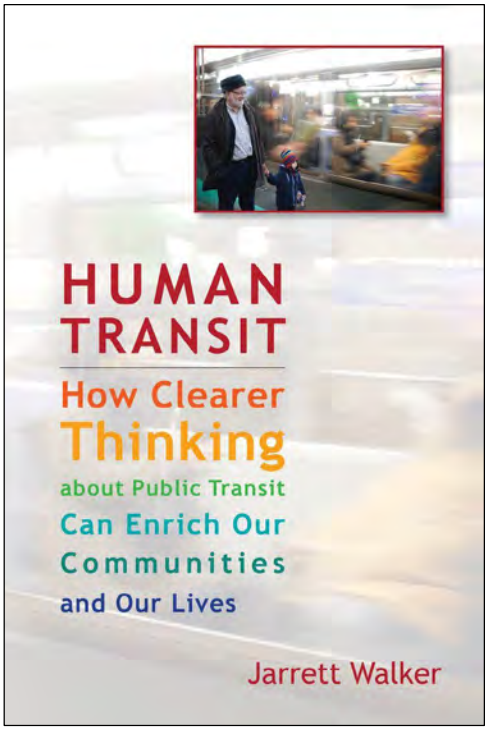
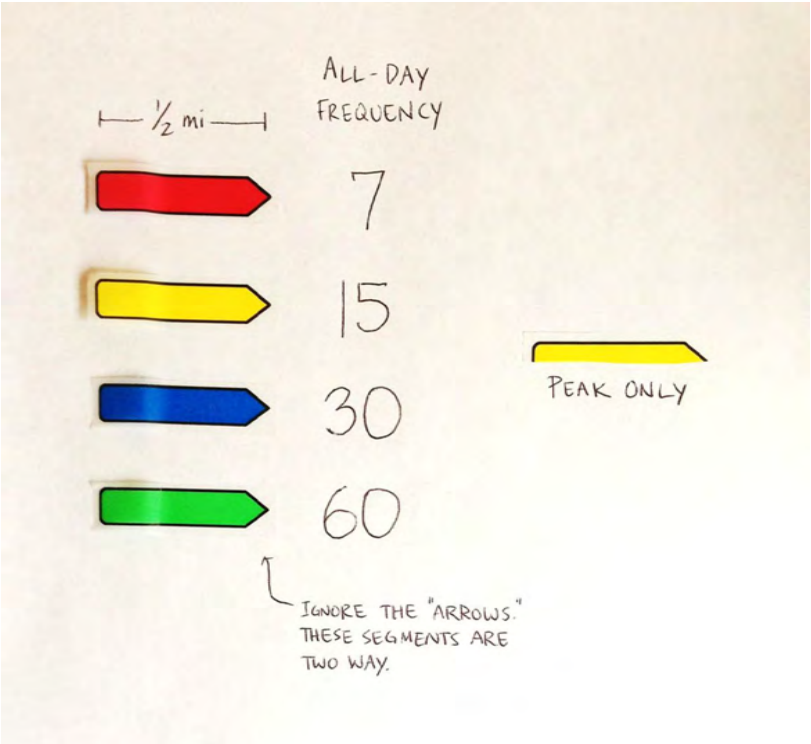


http://www.humantransit.org/

37

Network Design Exercise

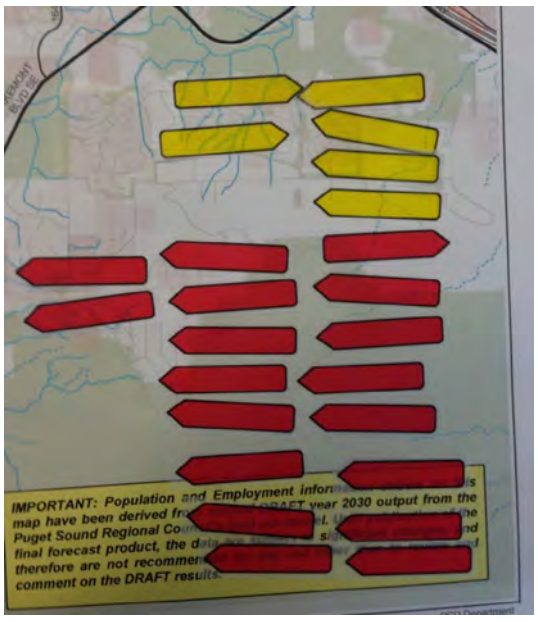


38

Network Design Exercise

39

Network Design Exercise



40

Trade-Offs

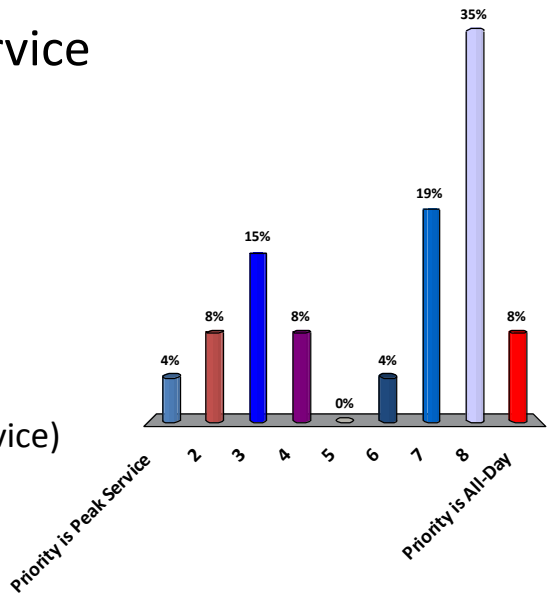
When we invest in transit, we have to make choices. Here are a few tough choices on which we'd like your opinion.

41

Should investments focus on peak period commuter service, or on building a network that runs all-day?

1. Priority is Peak Service

9. Priority is All-Day
(evening and weekend service)

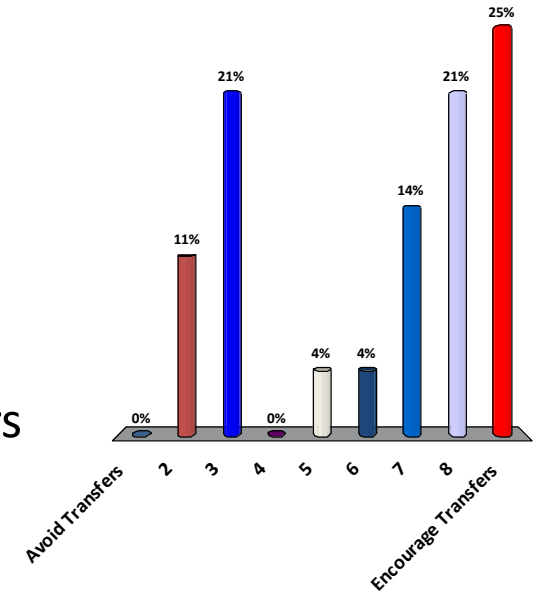


42

During peak commute, should we focus on running direct service from many places to each commute destination, or can we ask people to transfer?

1. Avoid Transfers

9. Encourage Transfers

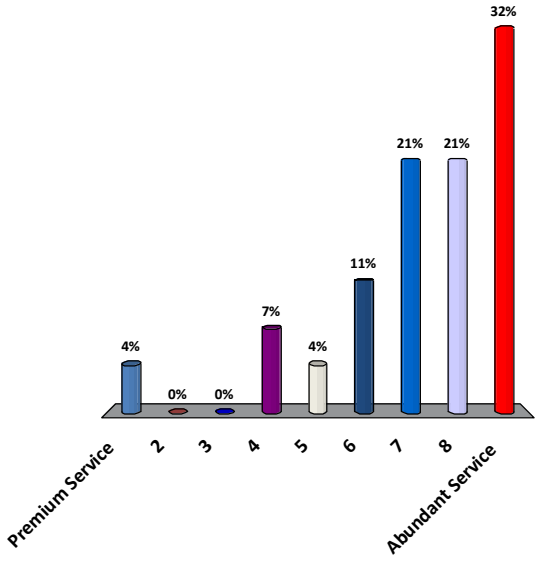


43

Should we focus more on investments that make service more attractive to higher end markets or focus on making service as abundant as possible?

1. Premium Service

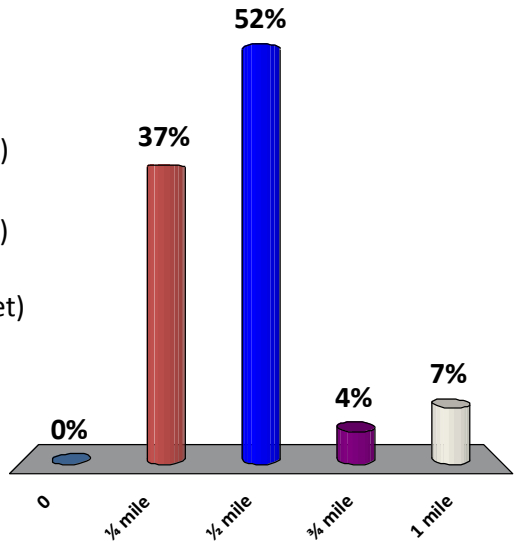
9. Abundant Service



44

How close to a home or job is close enough to count as being served (assuming decent sidewalks and service worth walking to)?

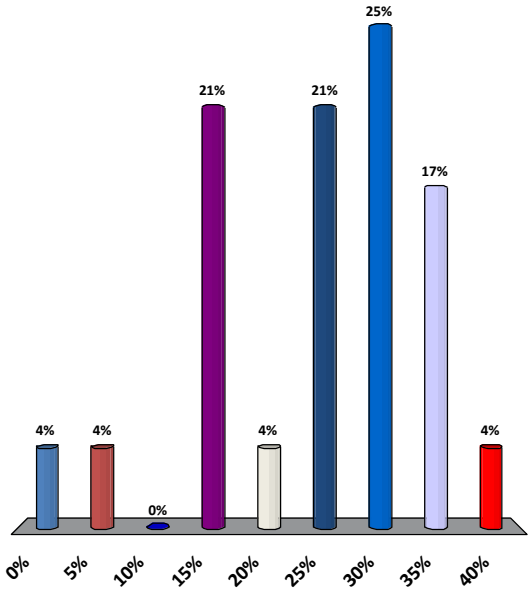
1. 0
2. ¼ mile (Main to 4th Street)
3. ½ mile (Main to 8th Street)
4. ¾ mile (Main to 12th Street)
5. 1 mile



45

What % of the population is it OK not to serve?

1. 0%
2. 5%
3. 10%
4. 15%
5. 20%
6. 25%
7. 30% We Are Here
8. 35%
9. 40%



46

ACKNOWLEDGEMENTS

CREATED BY THE CITY OF BELLEVUE TRANSPORTATION DEPARTMENT

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