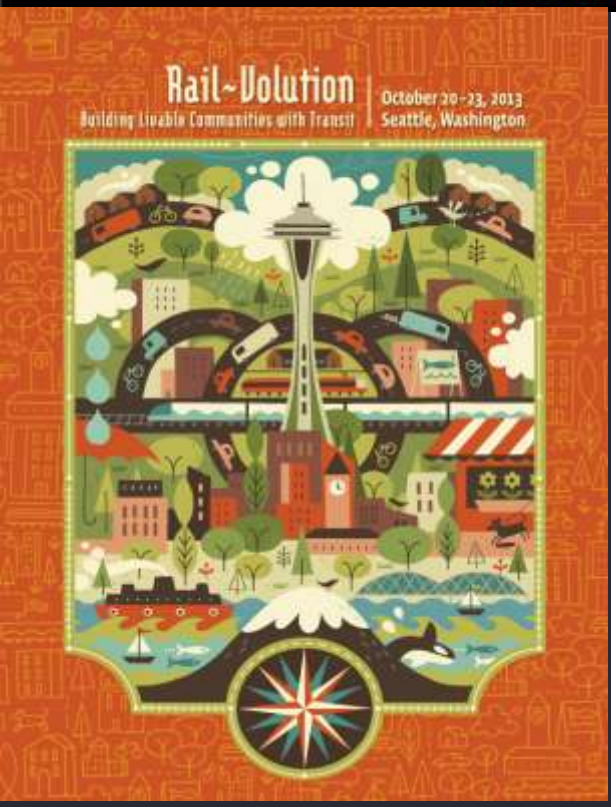

Transit Planning at 3 Scales: the Network, Corridor, and Station Levels

Case studies of challenges, solutions and lessons learned

October 21, 2013

Elizabeth Mros-O'Hara, John Katz, Charles Carlson, Alicia McIntire, and Jack Whisner

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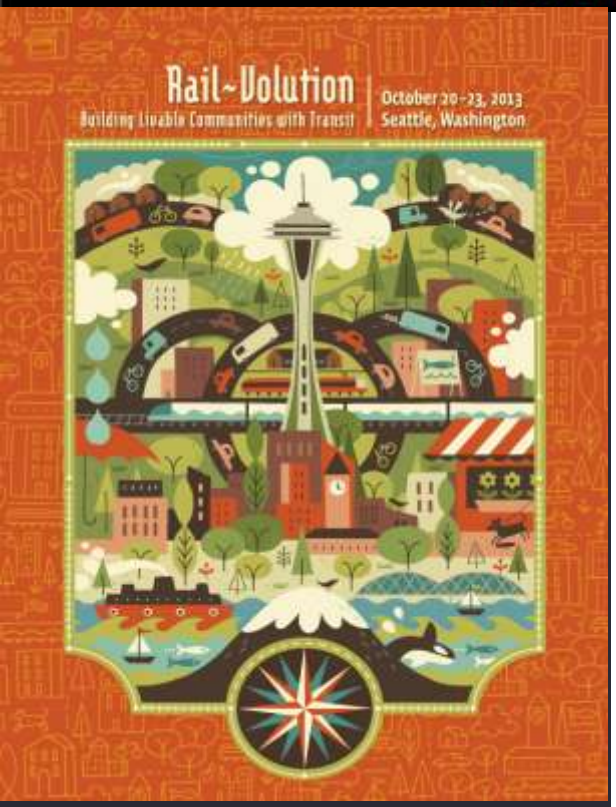
Building Livable Communities with Transit

Presenters

- Moderator: Elizabeth Mros-O'Hara, AICP, *Project Manager* -David Evans and Associates, Inc., Portland, OR
- John Katz, *Senior Transit Planner,* San Francisco Municipal Railway, San Francisco, CA
- Charles Carlson, *Senior Manager,* Metro Transit, BRT/ Smalls Starts Project Office, Minneapolis, MN
- Alicia McIntire, *Senior Transportation Planner,* City of Shoreline, WA
- Jack Whisner, *Transit Planner,* King County Metro, Seattle, WA



Overview-
Transit Planning at the Network, Corridor, and Station scales

Case studies of challenges, solutions and lessons learned

October 21, 2013

John Katz
San Francisco Municipal Transportation Agency

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Building Livable Communities with Transit

The Context of Transit Planning

- Who are we?

Urban, Suburban, or Rural

Planner, engineer, developer, elected official, student, community activist, none of the above.

- One size does not fit all.

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3 Scales of Transit Planning

- Transit Network : Transit Services provided over an entire system, or parts of a transit system.
- Corridor : How to improve a specific transportation corridor.
- Station : Creating a new transit station. A light or heavy rail station with connecting bus service, a BRT station, or a larger multi-modal facility.

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Network Example – SF Transit Effectiveness Project (TEP)

- The TEP is a long term prioritization and modernization process for the entire SF MUNI transit system.

- The goal is to get the system in balance with current and future demand while increasing speed and reliability, all within the constraints of projected operating budget budgets, fleet size, and facilities.

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STEP 1: Gather Data

- The TEP gathered ridership data from on-board automatic passenger counter technology (APC's) on all MUNI routes at all times of the day.

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Step 2: Analyze the data

- Where and when was the route structure insufficient to handle the demand, where and when does the system have extra capacity. What correctable factors contribute to slower speeds.

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Step 3: Apply Tool Kit of Improvements

a) Capital projects: bus bulbs, boarding islands, Transit signal priority , by-pass wires and extensions for trolley coach system, BRT corridors.

b) Route restructuring – re-route and/or combine routes, peak period expresses over heaviest parts of routes, consolidate stops, combine some terminals .

c) Eliminate turns/ route legibility : Convert portions of one-way streets to two way for transit. Back to the future.

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Step 4: Developed Preliminary Recommendations

- Preliminary TEP recommendations involved every route in the system.
- Prioritized heaviest routes (TEP dubbed "Rapid routes") for capital improvements.

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TEP Rapid Routes

LEGEND

Rapid Network
(every 9 minutes or better)

Non-stop express segment

Bay Area Rapid Transit

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Step 5: Community feed back

Took preliminary recommendations through a series of public meetings in different parts of the city.

Step 6: Modify Recommendations

Recommendations modified in some cases as a result of public in-put.

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Step 7: Environmental Review Process

2-year process to environmentally clear all capital projects and major route changes. Will involve more public comment.

Step 8: Implementation

If environmental document Ok'd, can move forward to implement changes and capital projects over time - funding and staff resources permitting.

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Lessons

- Depend on objective/ raw data , not previous assumptions .
- Travel patterns change over time, as land uses change.
- Have a variety of tools developed that can be applied appropriately to improve transit speed and reliability.
- Often strategies to improve transit speed are not welcome in parts of the effected communities.

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Challenges

- Parking reductions needed to implement improvements to transit service sometimes meet stiff resistance.
- Passengers who loose service often object. But those who will get more service generally don't self organize in favor.
- Need continuous outreach and political support at every stage.

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Corridor Planning

- A specific long street or state route, or several usually parallel streets within the same geographic area.
- One jurisdiction or many
- One transit route or several
- Should involve simultaneous improvements to several transportation modes- implement "complete streets" principles where possible.

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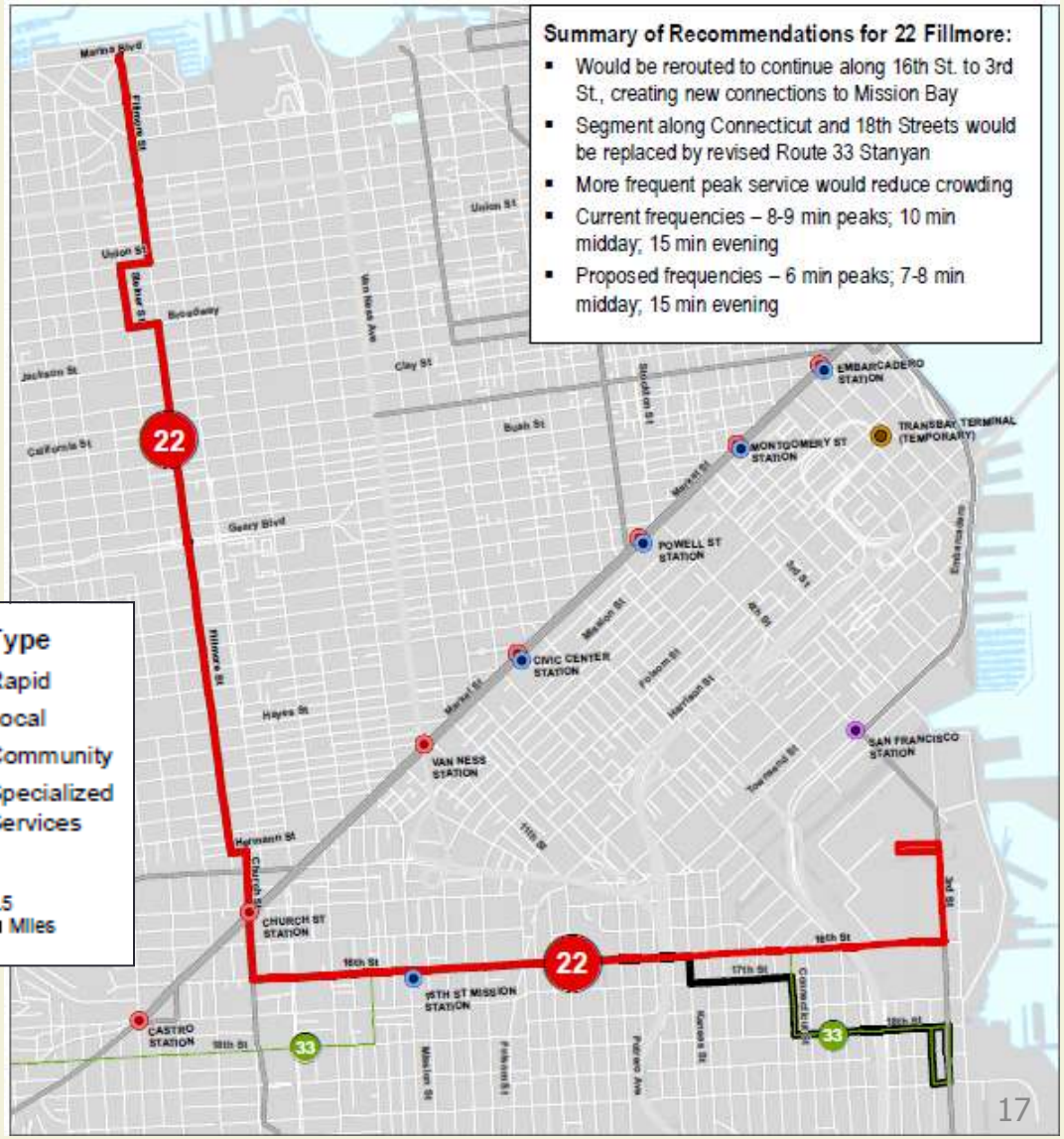
Building Livable Communities with Transit

22-Fillmore/ 16th St. Corridor



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Building Livable Communities with Transit

Lessons and Challenges

- Developing a careful balance of the needs of all stakeholders which often appear to compete:
  - Between transit, pedestrians, bicycles, autos
  - Between residents who want calm streets, and businesses, who generally favor parking.
- Proactive coordination with local jurisdiction(s)
- Be creative, patient, and have political support

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Station Planning

- Light rail, heavy rail, BRT station, or multi-modal hub.

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Transbay Transit Center in S.F

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Building Livable Communities with Transit

Van Ness BRT Station

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Building Livable Communities with Transit

Station Planning Lessons

- Access by other modes critical
- Transferring must be as seamless as possible
- Follow ADA – will benefit all
- Station should be a memorable place
- Fare collection protocols can influence station design
- Understand effects on surrounding land uses- work closely with local jurisdiction, community , and landowners.

METRO Orange Line

Case Study: Balancing Corridor, Network, and Station Design Tensions on I-35W in Minneapolis-St. Paul

Railvolution 2013

Charles Carlson
BRT/Small Starts Project Office
Metro Transit

Metro Transit
a service of the Metropolitan Council

Context: Planning for BRT on I-35W

Real-time Information

+

Better Accessibility

+

Improved Stations and Vehicles

=

Improved Experience

Less Boarding Delay

+

Congestion-free Ride

+

All-day, Frequent Trips

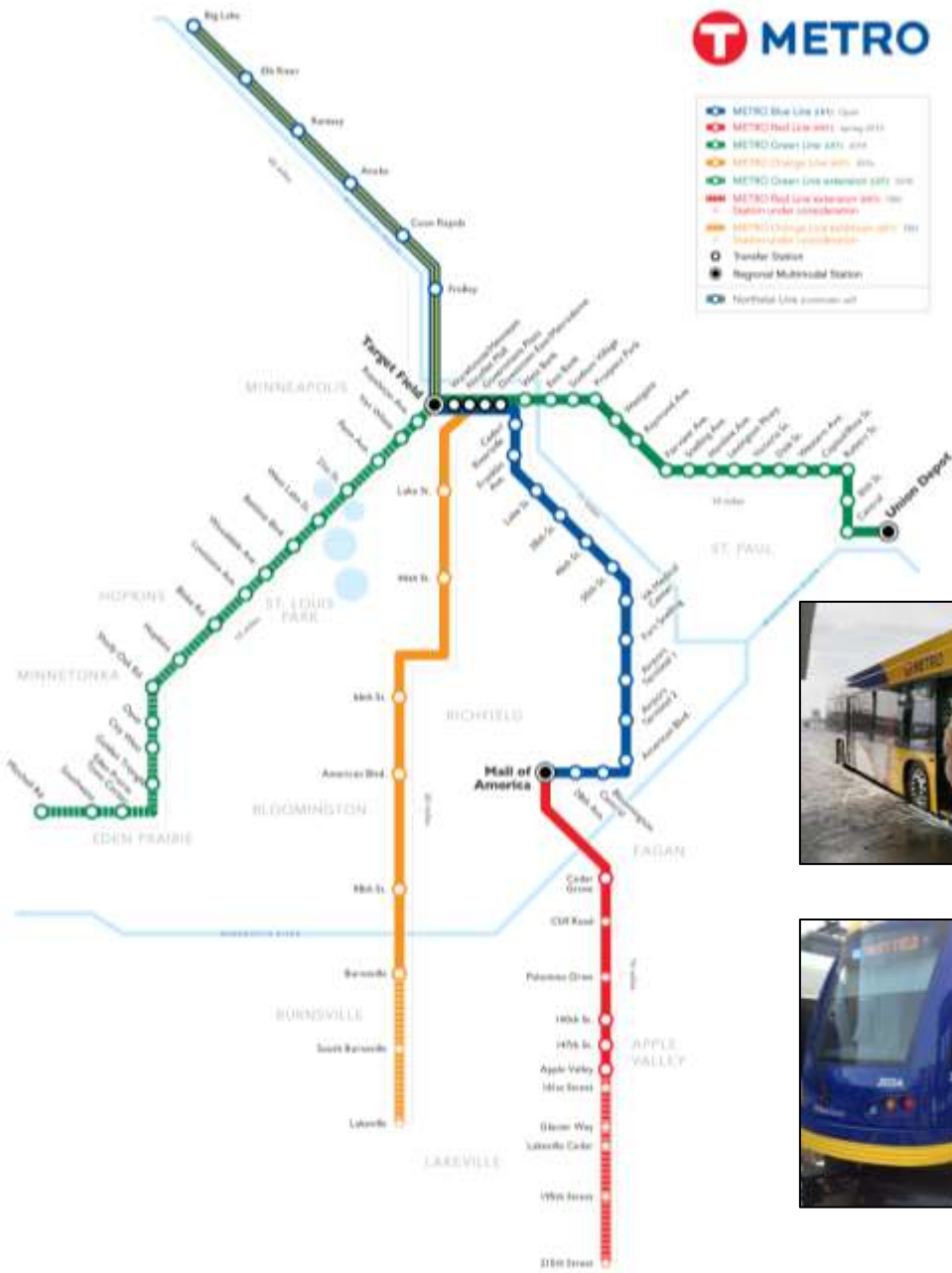
=

Reliable Service

Metropolitan Council

Metro Transit
a service of the Metropolitan Council

Orange Line: Part of new METRO Network



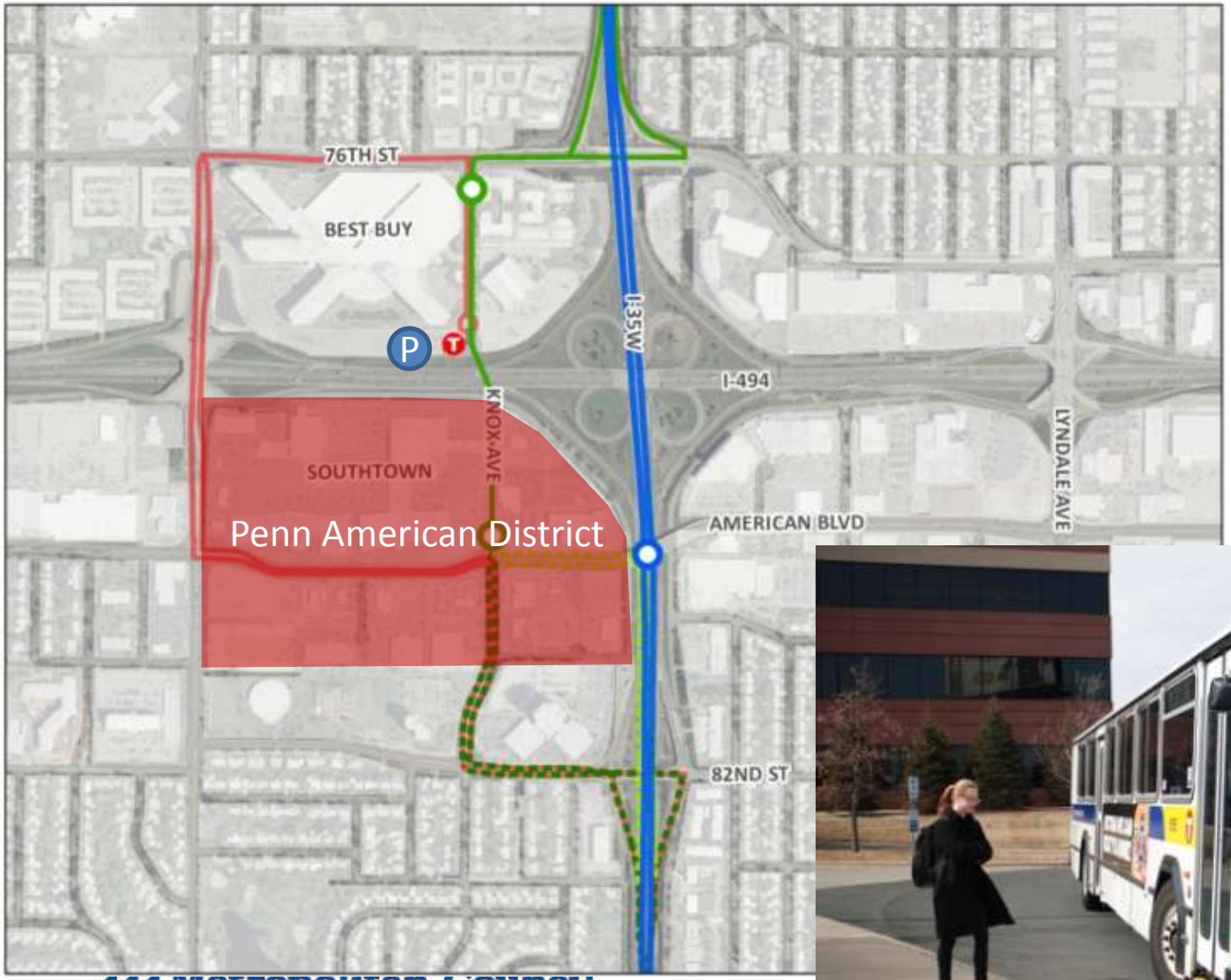
Penn-American District

Current Conditions- 1960s Retail

Beginnings of TOD emerge 2011-2013

Penn American District Future Vision

American Boulevard Station Options



Existing Route

- 18-minute travel time
- 15 traffic signals
- Backtracking required

American Boulevard Station Options

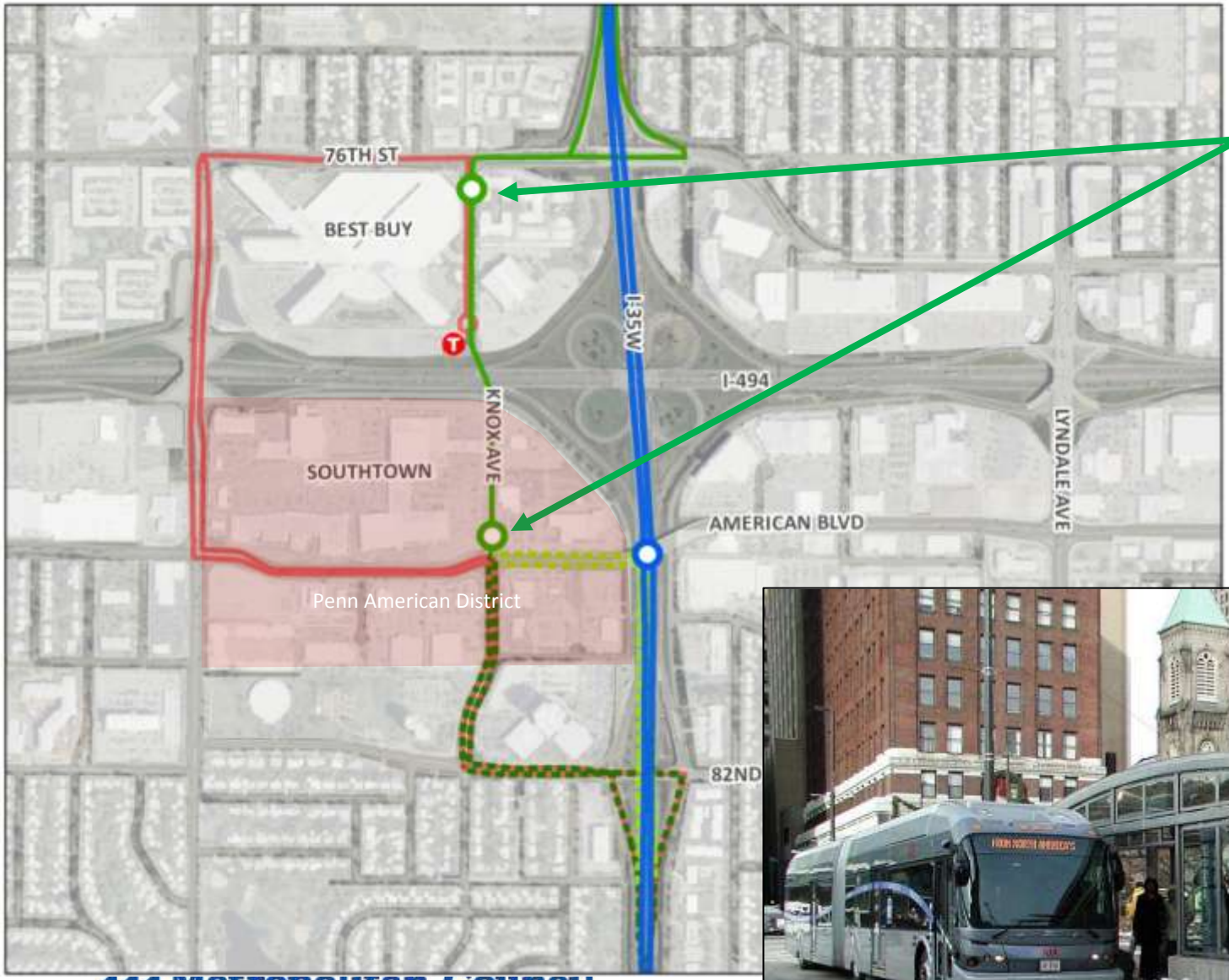
Option A:

Freeway Station

- Saves 12 minutes
- 0 traffic signals
- On managed lane, widens freeway

Metropolitan Cou

American Boulevard Station Options



Option B:

Street Stations

- Saves 7 minutes
- 7 traffic signals
- Adds I-494 underpass

Metropolitan Council

American Boulevard Station Options

Option C:
Street Stations
+Median Ramp

- Saves 9 min
- 4 signals
- Underpass + Wider freeway

Metropolitan Council

Balancing Tensions

Corridor Priorities

- Fast travel
- High ridership
- Minimize cost
- Consistent experience

Network Priorities

- Retain current coverage
- Intuitive route structures
- Optimized service plan

Station Priorities

- Access current destinations
- Catalyze new development
- Maximize rider comfort

Balancing Tensions- Station Priorities

Fast travel
High ridership
Minimize cost
BRT "Experience"

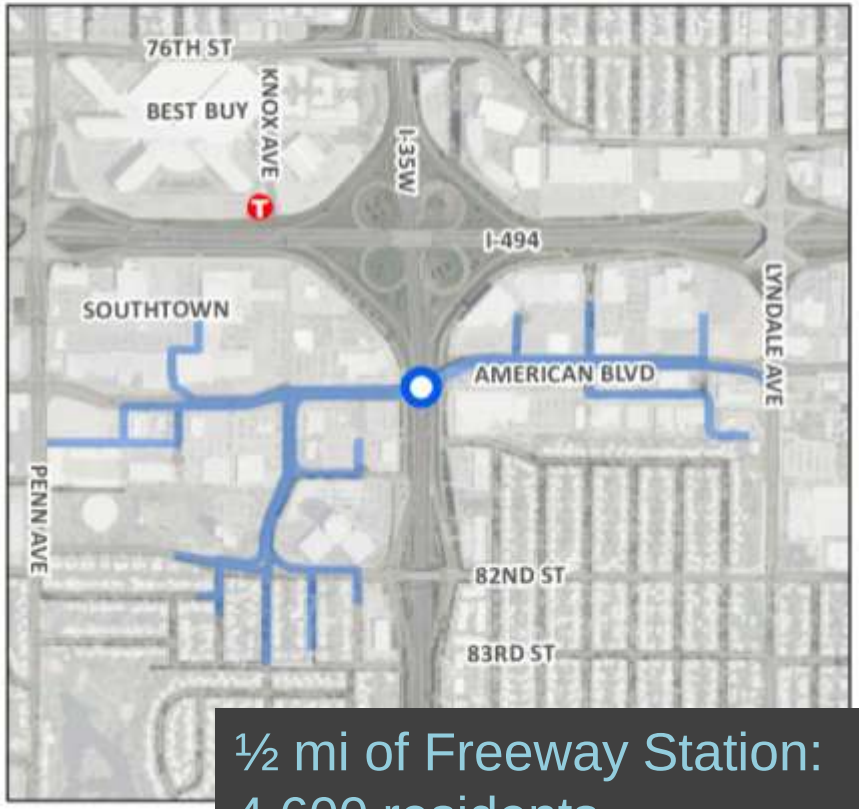
Lake Street Station Design

Existing I-35W & 46th Street Station

Metropolitan Council

Balancing Tensions- Station Priorities

Access current destinations



½ mi of Street Stations:
13,000 residents
13,000 jobs

½ mi of Freeway Station:
4,600 residents
8,100 jobs

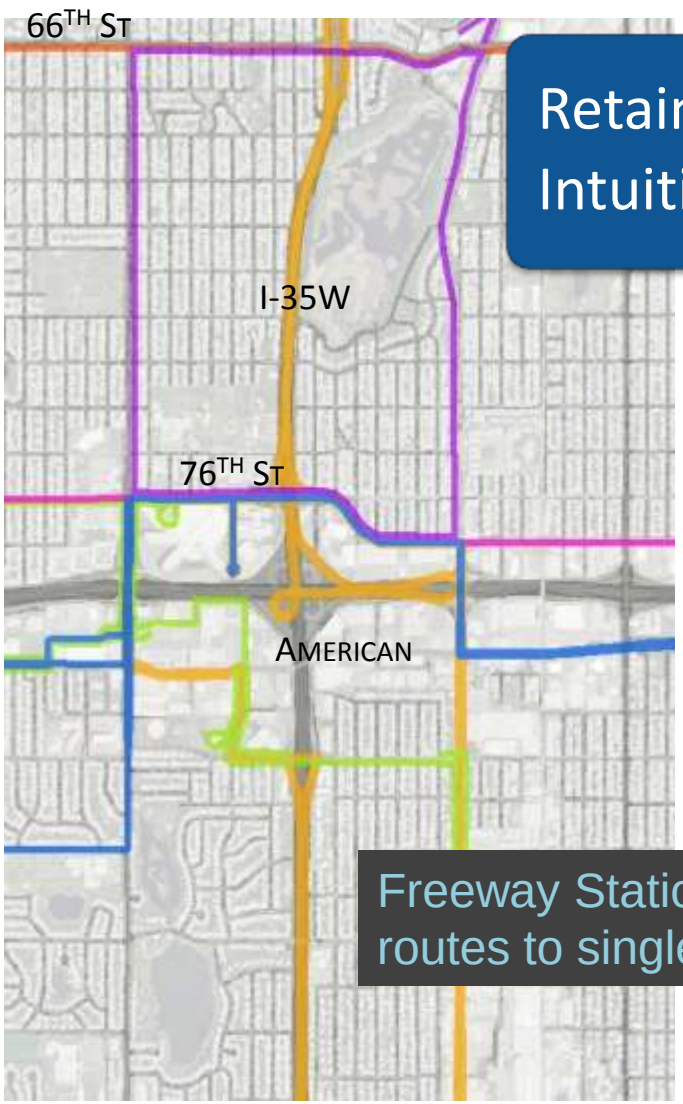
Balancing Tensions- Station Priorities

Balancing Tensions- Station Priorities

Maximize rider comfort

Balancing Tensions- Network Priorities

Retain current coverage
Intuitive route structures



Freeway Station: Divert routes to single station

Streets: Streamline routes, serve two BRT stations

Balancing Tensions- Network Priorities

Optimize service plan

Metro Transit
a service of the Metropolitan Council

Key Lessons

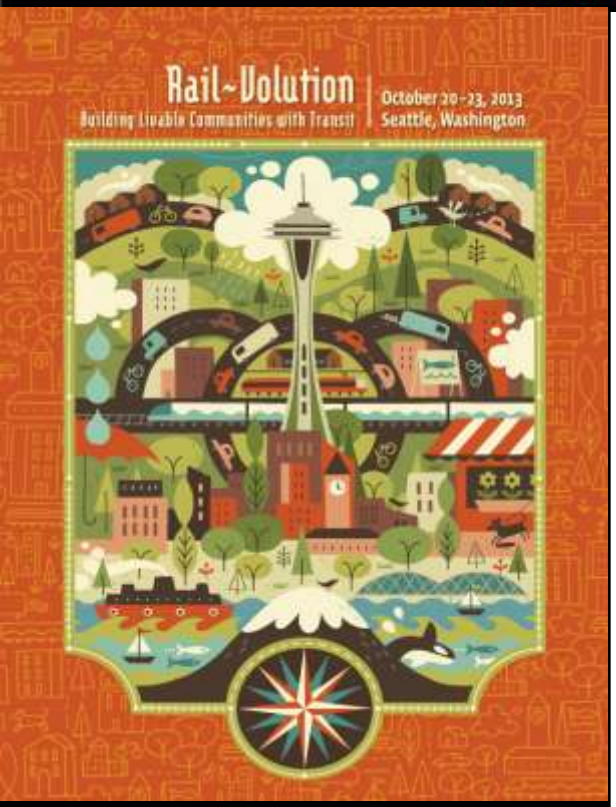
- Design a useful process
  …and then use it
- Develop useful criteria
  …and then use them
- Look beyond facility design and placement to balance tensions between scales

Project Outcomes

- Decision not yet made
- Similar costs between most alternatives

Closing Thoughts:

- Hire project leads who actually use (and believe in) transit service
- Riders make choices based on service usefulness, so favor a useful service over a familiar facility or corridor experience expectations
- Involve (and know needs of) real riders when making decision



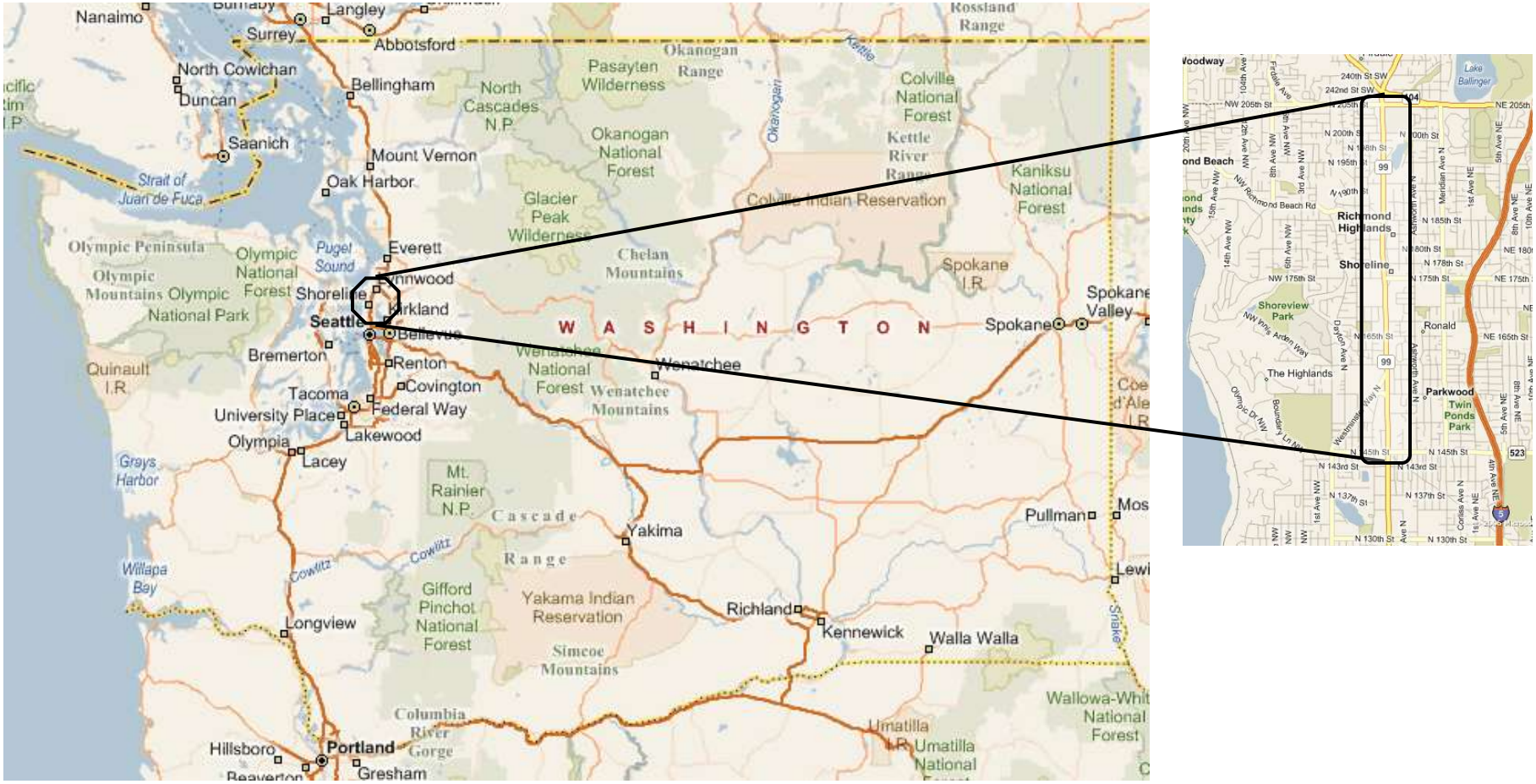
Case Study

Aurora Corridor Improvement Project

City of Shoreline, Washington

October 21, 2013

Alicia McIntire
Senior Transportation Planner
City of Shoreline

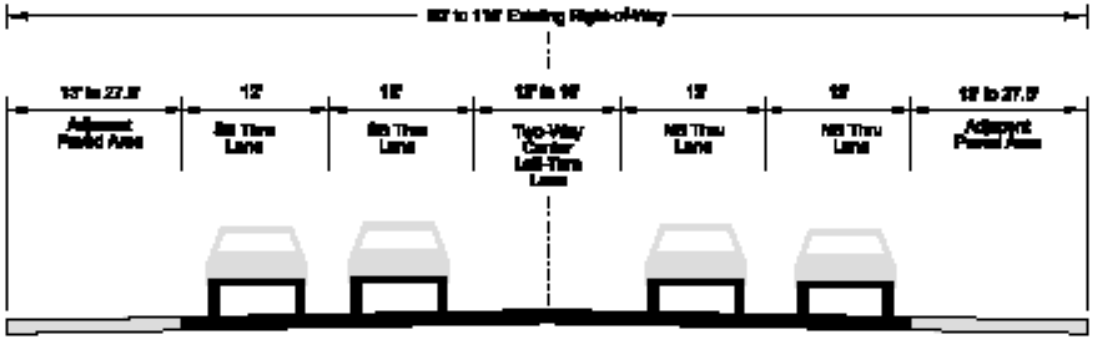

Nanaimo
Langley
Surrey
Abbotsford
North Cowichan
Duncan
Bellingham
Saanich
Mount Vernon
Oak Harbor
Strait of Juan de Fuca
Olympic Peninsula
Olympic National Forest
Olympic Mountains
Olympic National Park
Puget Sound
Everett
Shoreline
Kirkland
Seattle
Bellevue
Bremerton
Renton
Covington
Tacoma
University Place
Federal Way
Lakewood
Olympia
Lacey
Quinault I.R.
Grays Harbor
Willapa Bay
Longview
Hillsboro
Portland
Gresham
Beaverton
Pasayten Wilderness
North Cascades N.P.
Okanogan Range
Okanogan National Forest
Glacier Peak Wilderness
Chelan Mountains
Wenatchee National Forest
Wenatchee Mountains
Wenatchee
Mt. Rainier N.P.
Cascade Range
Gifford Pinchot National Forest
Yakama Indian Reservation
Simcoe Mountains
Columbia River Gorge
Yakima
Richland
Kennewick
Walla Walla
Pullman
Spokane
Spokane Valley
Spokane I.R.
Kettle River Range
Colville National Forest
Colville Indian Reservation
Kaniksu National Forest
Rossland Range
Okanogan
Kettle
Columbia
Snake
Umatilla I.R.
Umatilla National Forest
Wallowa-Whitman National Forest
W A S H I N G T O N
Woodway
Richmond Beach
Richmond Highlands
Shoreline
Shoreview Park
Ronald
The Highlands
Parkwood
Twin Ponds Park
Lake Ballinger
NW 205th St
NE 205th
N 200th St
N 195th St
N 190th St
N 185th St
N 180th St
N 178th St
NW 175th St
N 175th St
NE 175th St
N 165th St
NE 165th St
N 145th St
N 143rd St
N 137th St
N 130th St
240th St SW
242nd St SW
NW Richmond Beach Rd
NW Innis Arden Way
Dayton Ave N
Meridian Ave N
Ashworth Ave N
Aurora Ave N
Corliss Ave N
Fremont Ave N
Fremont Ave N
Olympic Dr NW
Boundary Ln NW
Westminster Way N
104
99
523
5


McDonald's

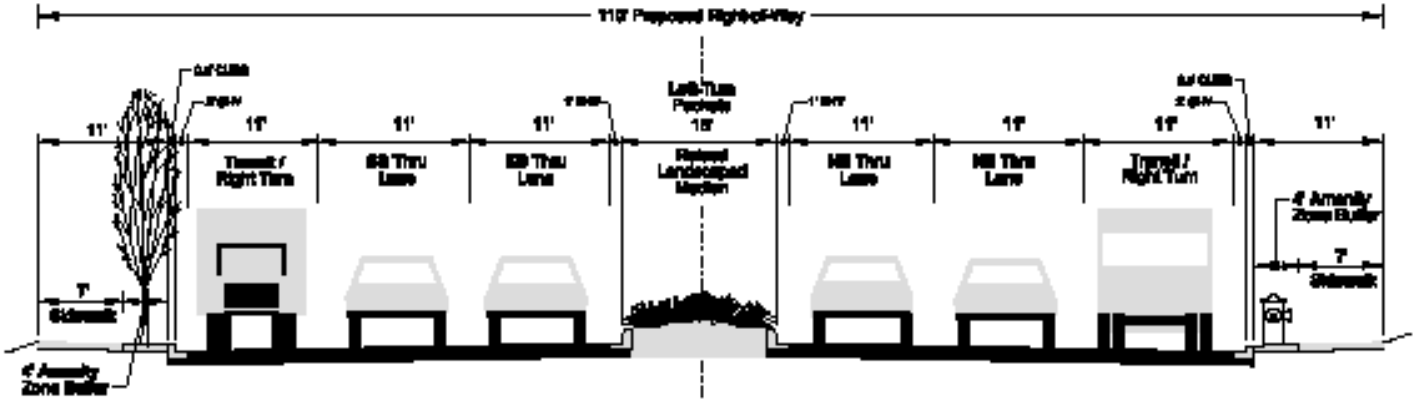

N 160 ST
76

1998 – Began Multi-Modal Pre-design study

- Citizen Advisory Task Force
  - Business Community
  - Neighborhoods
  - Transit Users
- Interagency Team – Public Sector stakeholders
- Issues
  - Businesses – access, median, driveways, visibility, construction, loss of parking
  - Transit – speed and reliability, rider safety (boarding areas)
  - City – Safety, traffic flow, increased transit use, economic redevelopment, aesthetics, preserve neighborhoods, identity change
- Groups developed preferred design concept and "32 Points"



No Action Alternative
Typical Cross Section at Mid-Block



Alternative A-Modified
Typical Cross Section at Mid-Block


McDonald's


N 160 ST
76


EUROPEAN
SHA'S
ONLY


Shari's
RESTAURANT
Shari's RESTAURANT
Wendy's
JO-ANN
THRIFT STORE

“Parallel” effort – Interurban Trail

- Nonmotorized trail in public utility corridor
- Adjacent to Aurora Avenue N
- Two bridges constructed with Mile 1 of Aurora Avenue N


SEARS

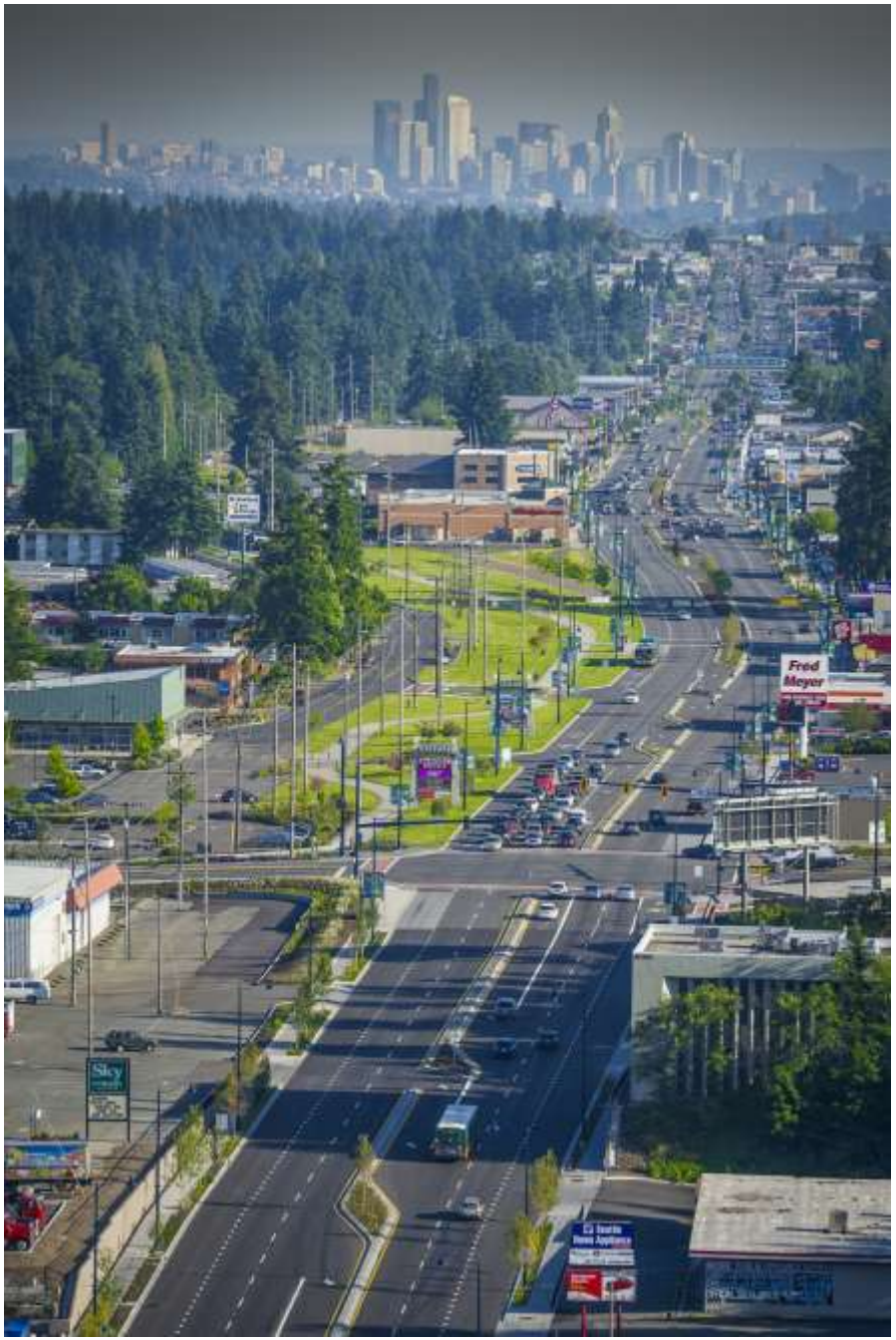
- City created Aurora Business Team (ABT)
  - Gain business community trust, support of process and outcome
  - Advisory to Aurora staff
  - Located along the corridor
  - Owners and tenants
  - Small and large business/property owners
- Met eleven times
- Developed alternative project design – carried through environmental process

City created Aurora Business and Community Team (ABC Team)

- Monitor progress, provide input, represent community, disseminate information, ensure transparency, answer questions up front
- Provided briefings prior to environmental documentation preparation – vetted the scope of each topic
- Different topics at each meeting
- Three alternatives vetted
- Updated 32 Points

Outcome…

SUCCESS!



PROJECT BENEFITS AND SUCCESSES

- Redevelopment projects
- New jobs
- More shopping and service choices for Shoreline residents and the region
- Improved safety, mobility and choices
- Traffic accidents reduced 60% in the first mile
- Transit speed and reliability
- Gathering spaces created
- Community identity

LESSONS LEARNED

- Importance of community involvement
- Innovative strategies
- “32 Points” and Report Card – keys to success
- Partnerships – WSDOT, King County Metro Transit
- Vision
- Communication – no surprises and follow through

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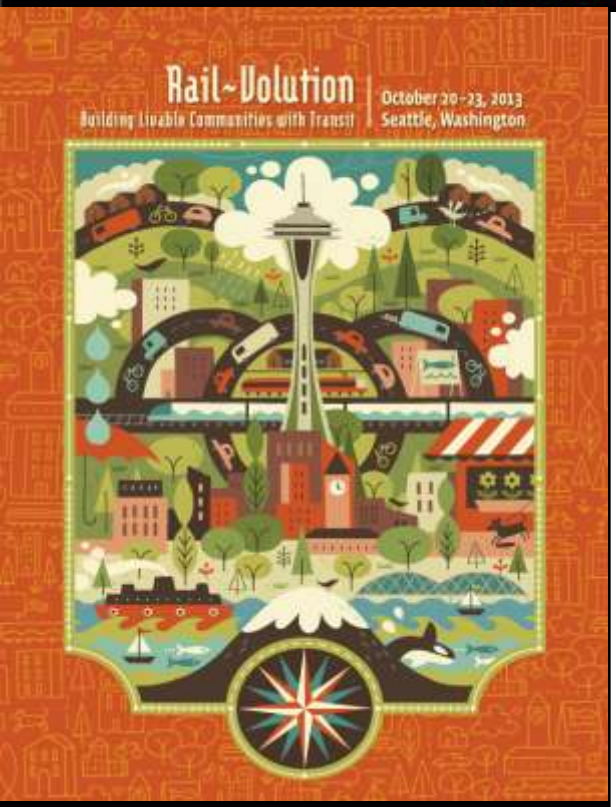


Jack Whisner
Transit Planner
King County Metro

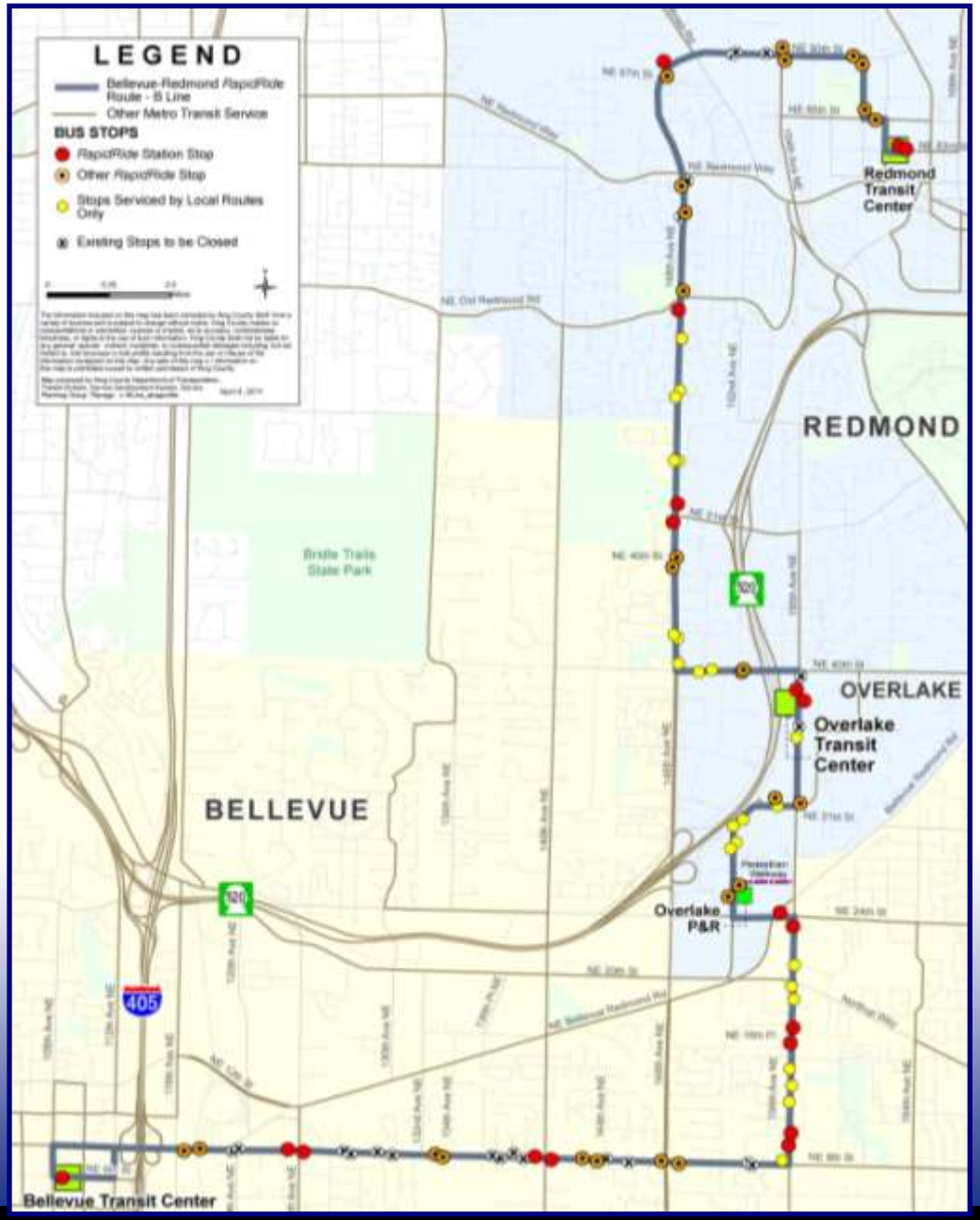
Bellevue-Redmond Connections

RapidRide B Line Implementation

Network Restructure, Fall 2011

RapidRide

- Frequent, reliable, and Faster
- Enhanced Rider Experience
- 23,000 new annual hours



- B Line Stop Profile
  - 19 Stations
  - 26 Stops
  - 20% faster than current local routes

WHO?

- King County Metro and Sound Transit (ST)
- Cities
- Urban Partnership Agreement (UPA)
- Bellevue College and University of Washington

WHAT?

- Service restructure to complement RapidRide BRT Line and recent ST service improvements
- Shift hours to two-way all-day routes from one-way peak-only routes
- Establish frequent all-day network

Bellevue-Redmond Transit
CONNECTIONS

WHEN?

- UPA service adds in 2010 and 2011
- B Line restructure in Fall 2011
- Redmond Transit Center in February 2008
- Layover changes

Bellevue-Redmond Transit
CONNECTIONS

HOW?

- http://metro.kingcounty.gov/have-a-say/
- Two-stage public outreach
- New web-based maps and narratives
- Sounding Board
- Council process

CONTEXT:

- Recession, fiscal crisis, and Regional Transit Task Force
- SR-520 Tolling
- BRT implementation
- Two-way demand
- Network obsolete but had existing riders

Get Ready for SR 520 Tolling

- FTA funded buses
- Transit agencies added service
- Restructures maintained number of peak period trips

Bellevue-Redmond Transit
CONNECTIONS

Project Goals and Objectives

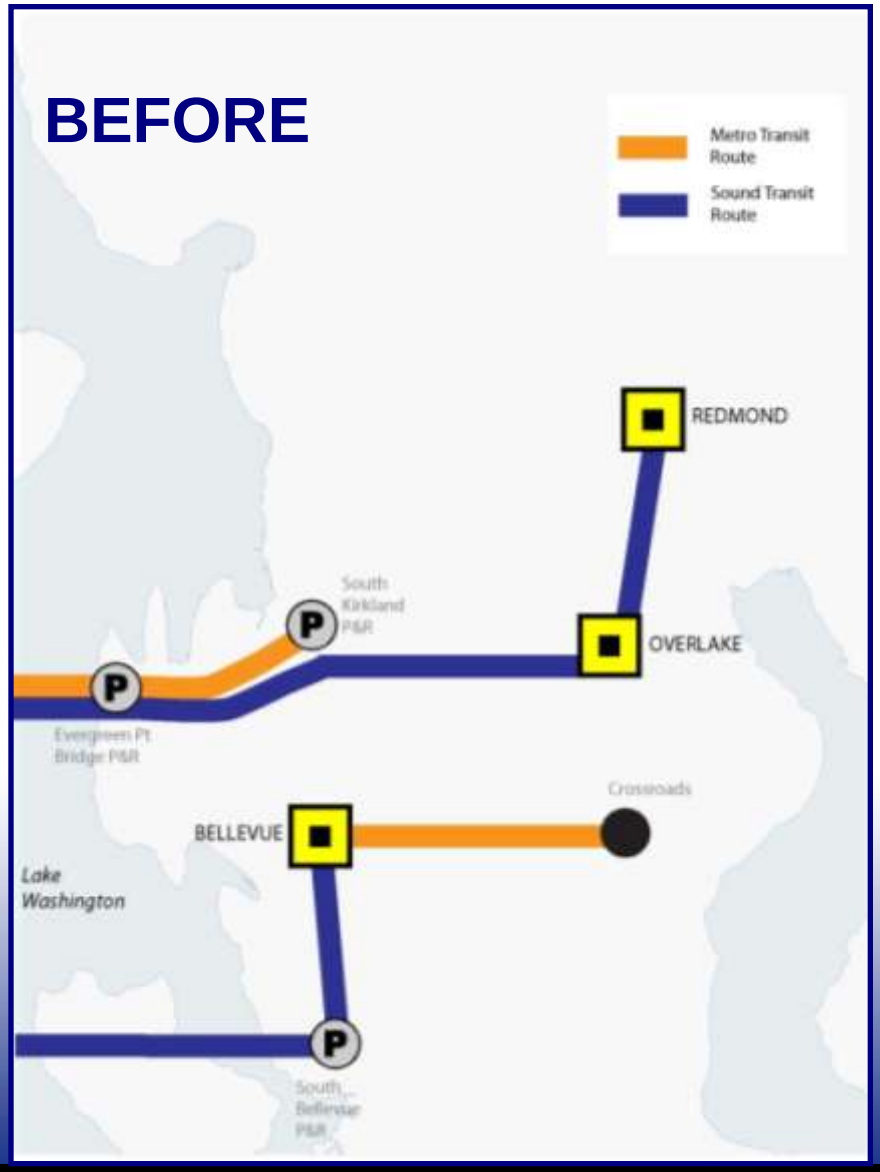
- Build on investments: service and capital
- Prepare for SR 520 tolling
- Improve efficiency and effectiveness
- Invest in routes with highest ridership potential
- Improved transit mobility: span and frequency
- Minimize loss of coverage

Bellevue-Redmond Transit
CONNECTIONS

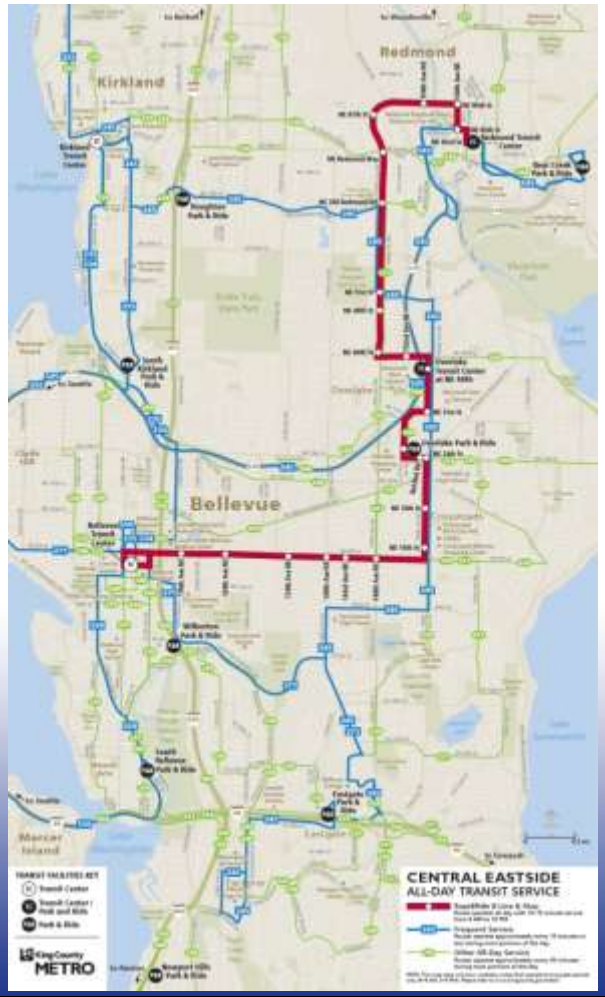
Project Constraints

- Limited service budget
- Maintain number of peak bridge trips
- RapidRide alignment and service fixed
- Geographic scope limited
- Current riders
- Layover constraint

Eastside and Crosslake All-Day, Two-Way Frequent Network



Bellevue-Redmond Transit
CONNECTIONS



OUTCOME:

Ridership response to restructure and tolling

- ST weekday productivity up 34 percent over two years
- Metro weekday productivity up eight percent over two years
- Metro weekend productivity improved despite added trips and hours

Bellevue-Redmond Transit
CONNECTIONS

Route 240 pathway

- Sounding board recommendation via Eastgate
- Management: status quo
- Council: via Eastgate
- Bellevue College lobbying
- Deviation guideline

New Network

- Four new routes
- 12 routes deleted
- B Line and four others provide short headways
- Weekend and off-peak improvements

Rail~Volution

Building Livable Communities with Transit

Questions?