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RTP "Cause and Effect" Scenarios

Linking Transportation to Land Use, the Economy and the Environment

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Nov. 12, 2008 | MPAC, JPACT and Metro Council Discussion

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Recent & upcoming MPAC & JPACT events

October 8	Global trends
October 22	Land use and investment choices
November 12	Transportation choices
December 10	Guidance on mix of strategies and elements to carry forward
Spring ’09	Evaluation and direction on recommended strategies and elements
December ‘09:	Adopt RTP, UGR and Reserves

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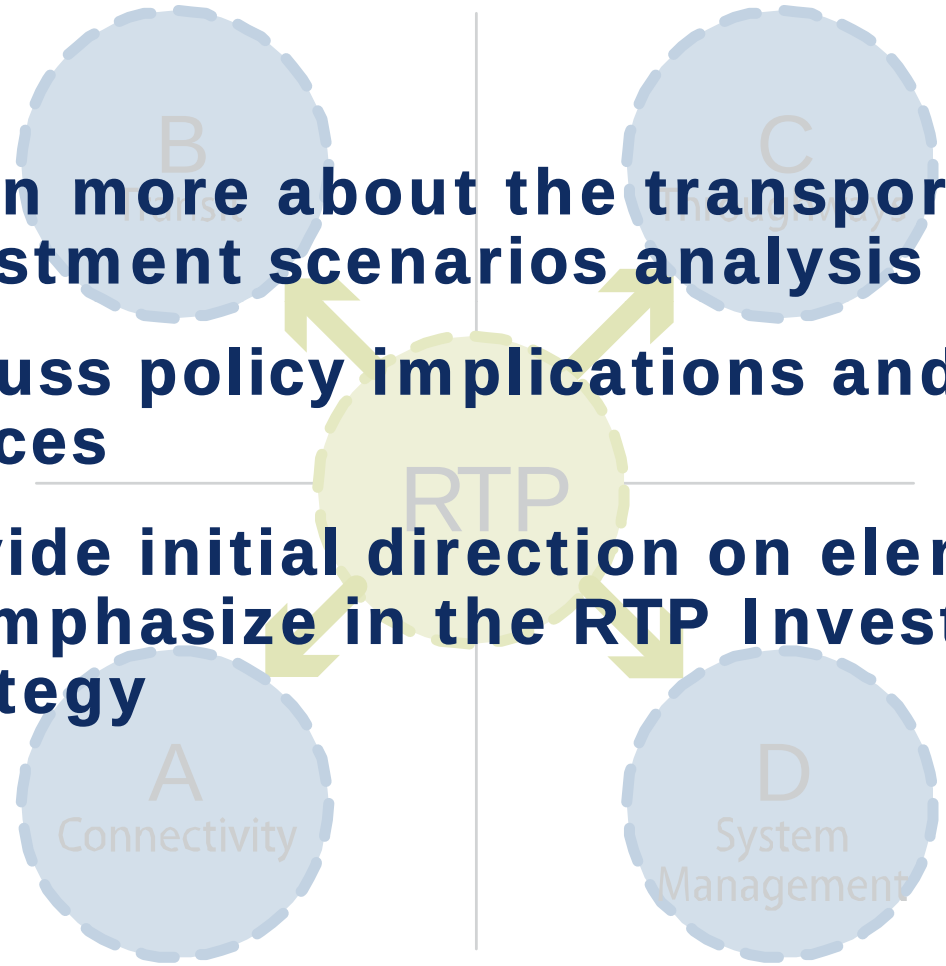
Purpose of today



- **Learn more about the transportation investment scenarios analysis**
- **Discuss policy implications and choices**
- **Provide initial direction on elements to emphasize in the RTP Investment Strategy**

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MAKING THE GREATEST PLACE

Choices for the Future

Urban Form

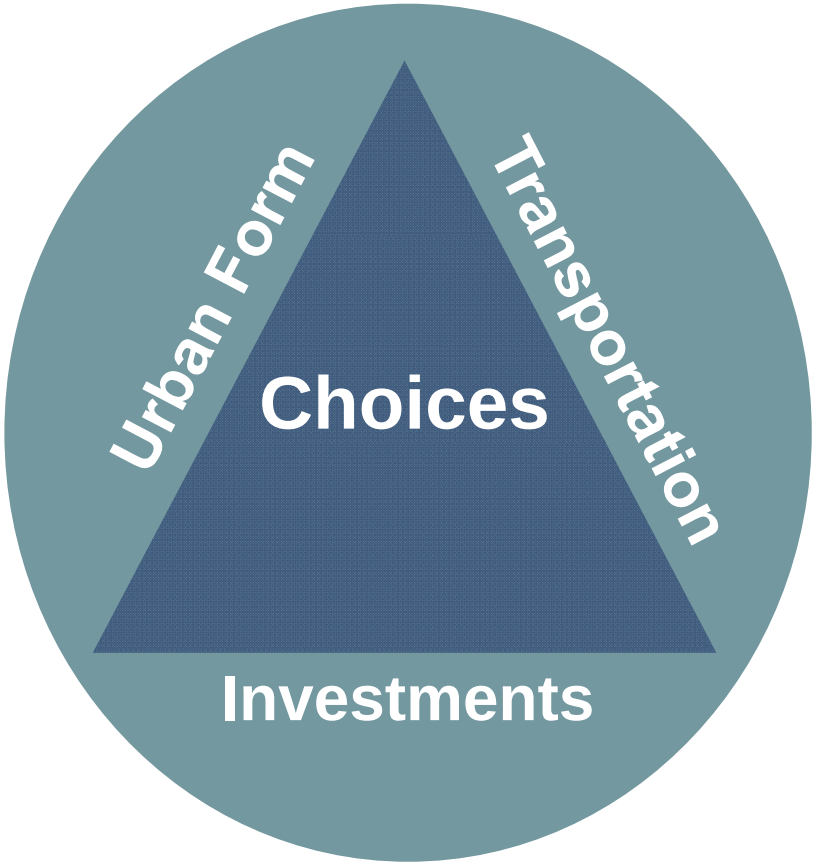
How and where do we grow?

Transportation

How do we travel?

Investments

How do we prioritize needed investments?



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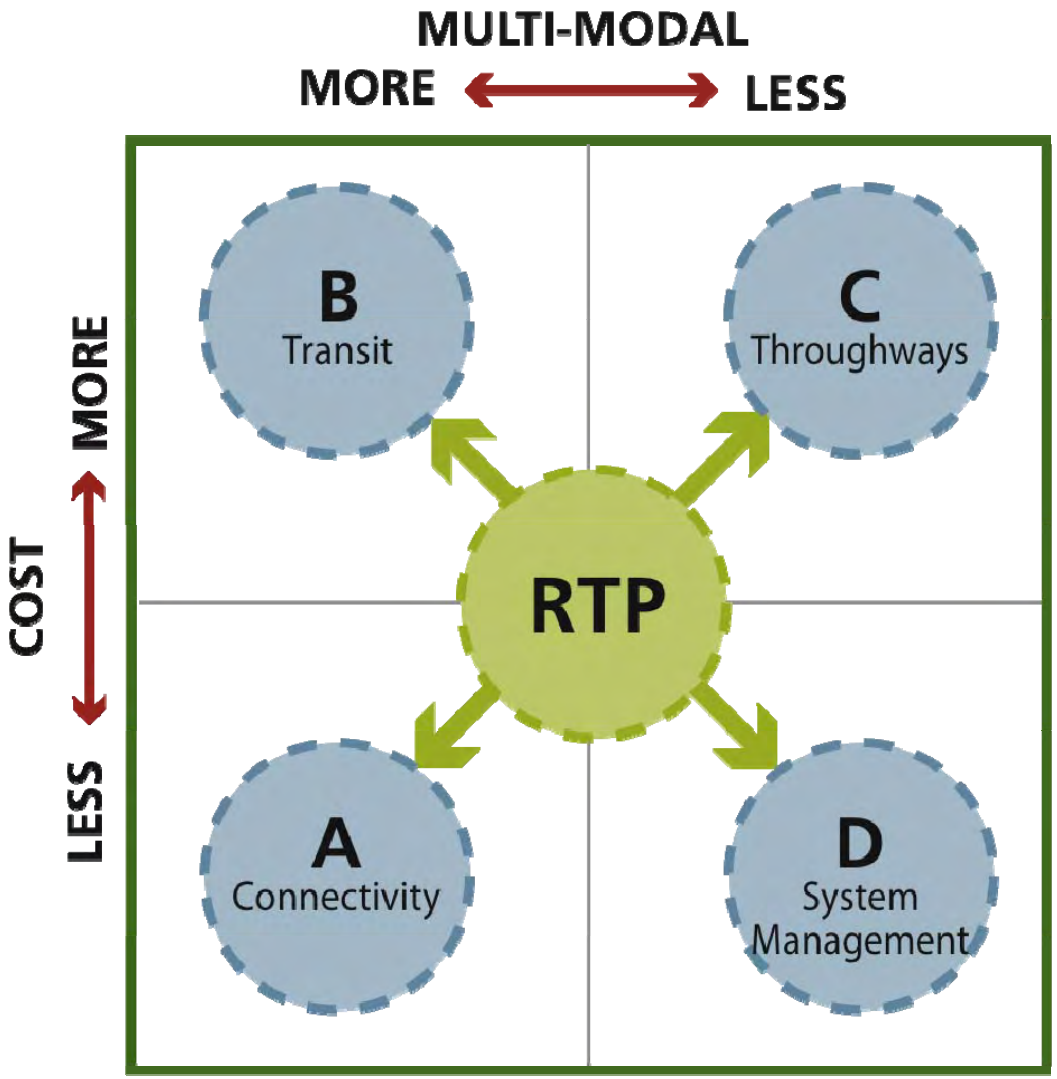
RTP Investment Strategy Direction



Trade-offs

- Financial
- Political
- Environmental
- Community
- Economic

What elements should be emphasized in the RTP investment strategy, considering these trade-offs, your community aspirations and the 2040 Growth Concept vision?

WHAT WE TESTED AND WHAT WE LEARNED

TRANSPORTATION SCENARIOS

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Assumptions Overview

WHAT WE EVALUATED

- Cost and feasibility
  - financial & political
- Housing and job locations
- Vehicle emissions
- Travel behavior
- Mobility
  - Access to industry and freight and goods movement
  - Commuting

WHAT WE DID NOT EVALUATE
(but will in next phase)

- Corridor-level effects
- Bike, ped and trail connections
- Effect on environmental justice communities
- Effect on built and natural environment

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REFERENCE SCENARIO

CURRENT PLANS & RTP

KEY ASSUMPTIONS – REFERENCE SCENARIO

Reference Scenario – Current Plans

Theme	Purpose	Key Assumptions
Reference: Current RTP *Current path if current local and regional plans are followed through 2035*	**Rely on current adopted plans and policies to serve future needs**	• **Adopted Financially Constrained System** • **Current land use plans** • **New funding sources(1)**

Notable assumptions:

- **Sunrise from I-205 to 122nd**
- **Milwaukie light rail**
- **Lake Oswego Streetcar**
- **All day service for WES commuter rail**

(1) Assumes 1 cent per year gas tax increase for maintenance
(2) $15 vehicle registration fee increase every 8 years for expansion

Projects not included in analysis:

- **Columbia River Crossing**
- **I-5/99W connector**
- **I-5/I-84 interchange**

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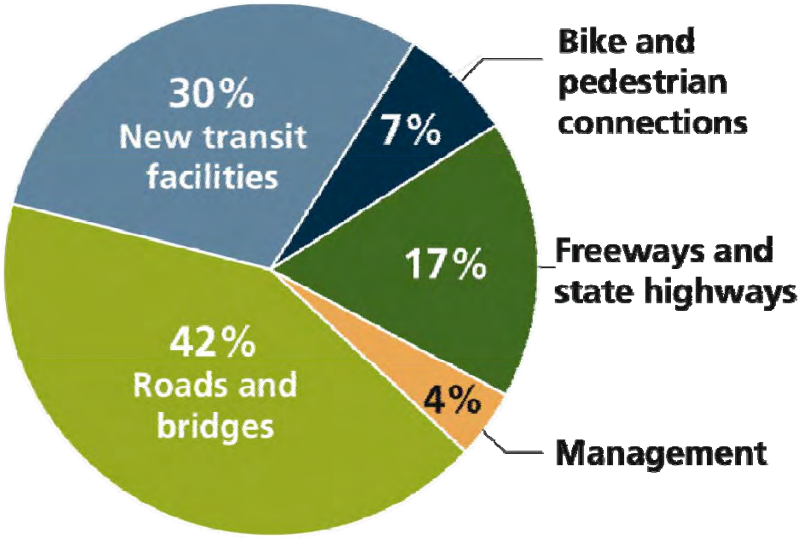
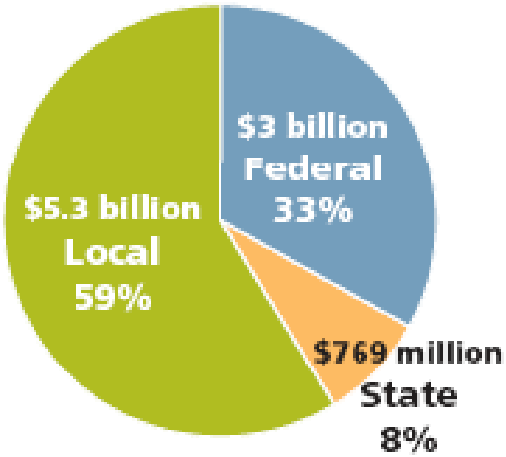
Reference Scenario – Finance

Capital cost assumption in 2035 RTP = $9.07 billion



Cities and counties are funding an increasing share of the transportation infrastructure
(Capital revenue by source)



Source: 2035 Regional Transportation Plan

(1) Assumes 1 cent per year gas tax increase for maintenance
(2) $15 vehicle registration fee increase every 8 years for expansion
(3) Federal funding continues at historic rates.

CONNECTIVITY SCENARIO

CONCEPT A

KEY ASSUMPTIONS – CONCEPT A

Connectivity Scenario

Theme	Purpose	Key Assumptions
Concept A - Connectivity *Aggressive implementation of RTP connectivity policies*	Rely on a dense network of major streets to spread out traffic and serve future needs	• Same transit as Reference Scenario • Adds all arterials in current plans and widens existing streets to 4 lanes to meet 1-mile arterial spacing • 12 new river crossings • Arterial overcrossings of throughways every 2 miles

Notable assumptions:

- I-5/99W connector as 4-lane arterial
- New arterial river crossings - Columbia River (2 bridges), Willamette River (3 bridges), Tualatin River (3 bridges) and Clackamas River (3 bridges)

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HIGH CAPACITY TRANSIT SCENARIO

CONCEPT B

KEY ASSUMPTIONS – CONCEPT B

High Capacity Transit Scenario

Theme	Purpose	Key Assumptions
Concept B – High Capacity Transit *Bold expansion of HCT and frequent bus service, beyond current RTP policy*	**Rely on a high capacity transit oriented system to meet future needs**	• Same roads as Reference Scenario • HCT to all regional centers, some town centers • All HCT modeled as LRT • New park-and-ride lots • 15-minute or better service on all major arterials • Portland Streetcar Plan

Notable assumptions:

- Enhancements to existing system to improve efficiency and speed, including a subway through downtown
- Portland Central City to Washington Square via Barbur Blvd.
- Extensions to Oregon City, Forest Grove and Mt. Hood Community College
- Clackamas to Washington Square light rail via I-205
- Clark County HCT loop, connecting to Expo and Gateway
- Commuter rail to Columbia, Marion, Hood River and Yamhill counties

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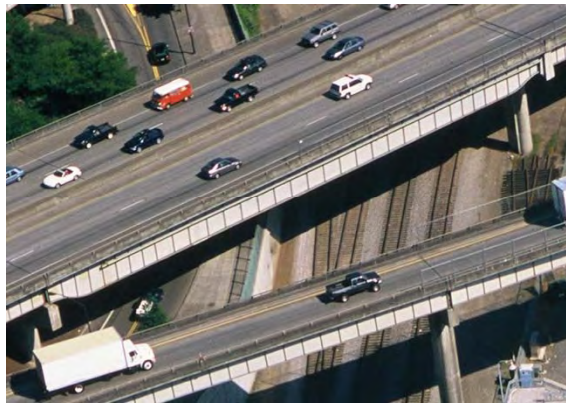
THROUGHWAYS SCENARIO

CONCEPT C



KEY ASSUMPTIONS – CONCEPT C

Throughways Scenario

Theme	Purpose	Key Assumptions
Concept C - Throughways *Bold expansion of throughway system, beyond current RTP policy*	**Rely on highway-oriented transportation system to serve future needs**	• **Same transit as Reference Scenario** • **Up to 10 lanes assumed in most congested Reference Scenario corridors** • **Number of through lanes tied to congestion** • **Two new Columbia River crossings**

Notable assumptions:

- **10-lane freeways - I-5 and I-205 bridges and sections of I-5 south and I-205 north**
- **8-lane highways – I-84, US 26, OR 217, I-5 north and I-205 south**
- **New 4-lane highways - I-5/99W, Sunrise Corridor, I-84/US 26 connector and new river crossings in Rivergate and Camas**
- **Second version includes high-occupancy toll (HOT) lanes on I-5, I-405, I-205, I-84, OR 217 and US 26**

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SYSTEM MANAGEMENT SCENARIO

CONCEPT D

KEY ASSUMPTIONS – CONCEPT D

System Management Scenario

Theme	Purpose	Key Assumptions
Concept D – Management *Aggressive implementation of RTP management policies*	**Rely on aggressive system management to optimize capital investments in the reference scenario**	• **Same transit and road system as Reference Scenario** • **Parking management and reduced transit fares in all centers** • **Access control and interchange removals** • **Arterial corridor traffic management**

Notable assumptions:

- **Parking costs increased and transit fare costs decreased in 2040 centers, mainstreets and employment areas**
- **26 interchange ramps closed to general purpose travel to reduce exit/entry merging conflicts**
- **A second version adds pricing of all lanes of capacity on I-5, I-405, I-205, I-84, OR 217 and US 26**

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SCENARIOS RESULTS – HOW THEY COMPARE

Overall System Cost

System costs

Scenario	Total system cost (billions)	Annual cost per household
Reference	$26.9	$1,100
Connectivity	$35.8	$1,500
High Capacity Transit	$66.7	$2,800
Throughways	$50.3	$2,100
Throughways + Tolls	$50.3	NA
Management	$28.2	$1,200
Management + Tolls	$28.2	NA

Costs are in 2007 dollars and are not adjusted for inflation. Costs include capital construction and operations, maintenance and preservation. HCT cost estimates were more rigorously developed than throughway estimates, and assume light-rail transit for all connections.

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Housing Reacts to Congestion

- Scenarios with decreased congestion in UGB show more housing growth outside UGB
- HCT scenario allocates the most to centers and corridors and least amount of housing outside UGB
- Throughway scenario shows the most housing growth in Clark County and UGB expansion areas

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TRANSPORTATION SCENARIOS RESULTS – HOW THEY COMPARE

Jobs React to Congestion

- Scenarios with decreased congestion in UGB show more job growth in UGB
- All scenarios show fewer jobs in Clark County compared to reference
- Connectivity scenario shows the most new jobs in Rivergate, Clackamas industrial area and Washington Square
- HCT scenario shows largest increase in jobs in Sunset industrial area, but fewest in Tualatin industrial area

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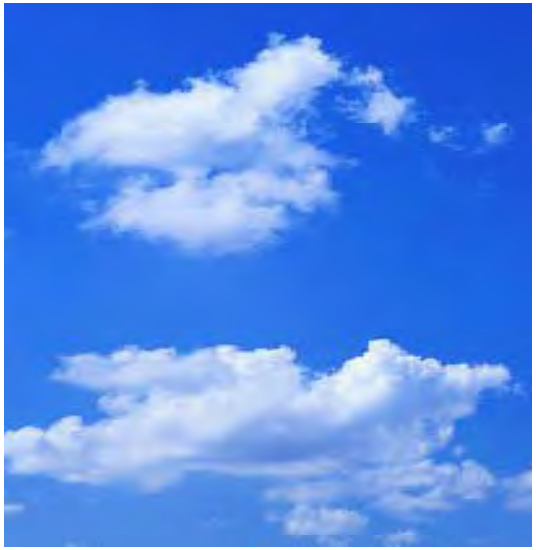
Air Quality Improves

- All scenarios show air quality that continues to improve from today
- HCT scenario shows greatest decrease in air pollutant levels, compared to reference
- Connectivity and Throughway scenarios show increase in all emissions levels, compared to reference



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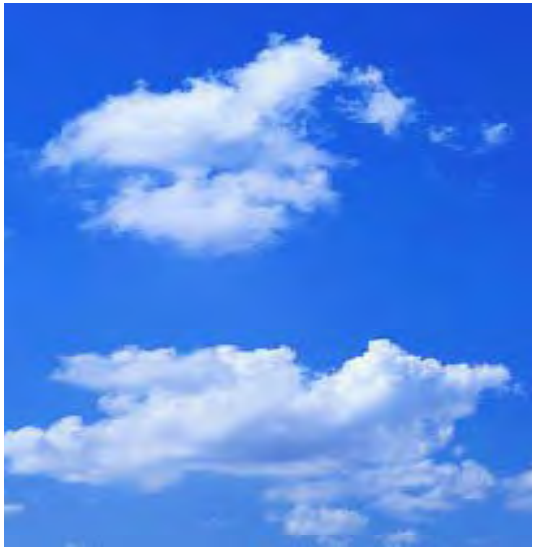
TRANSPORTATION SCENARIOS RESULTS – HOW THEY COMPARE

Greenhouse Gas Emissions Grow

- Residential GHGs static across all scenarios, but increase from today
- Transportation GHGs increase in all scenarios compared to today
- Scenarios that focus on road and highway capacity show greatest increase in GHGs compared to reference
- HCT scenario shows only decrease in GHGs compared to reference



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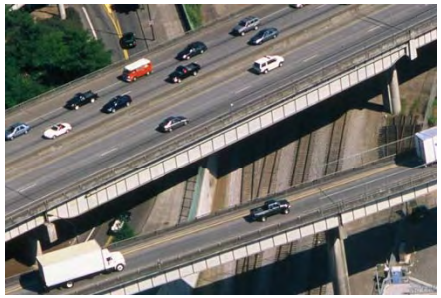
Congestion and Delay Grow

- More congestion and delay than today in all scenarios
- Connectivity reduces delay and improves transit travel times the most
- Extensive highway investment encourages longer and more trips; but reduces congestion and truck delay
- Scenarios with more highway capacity and management show larger increases in daily trips on state highways at UGB



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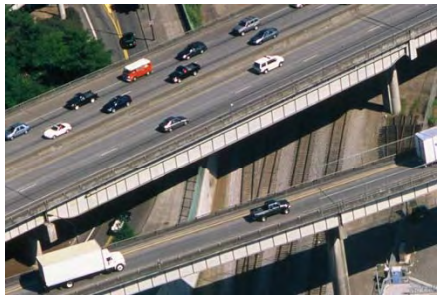
TRANSPORTATION SCENARIOS RESULTS – HOW THEY COMPARE

Walking, Biking and Transit Trips Grow

- All scenarios show continued decline in VMT per person from today except the throughway scenario
- Portland central city and all regional centers meet RTP mode share targets in all scenarios
- Extensive transit investment and higher parking costs increase transit use, walking and biking the most
- All scenarios show transit trips more than doubling from today, with HCT showing greatest increase



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IMPLICATIONS FOR MOVING FORWARD TO 2009

Financial and Political Considerations

- All have strengths and unintended consequences
- All have different public agency implementation "leads" and potentially different funding sources
- All require significant commitment and action

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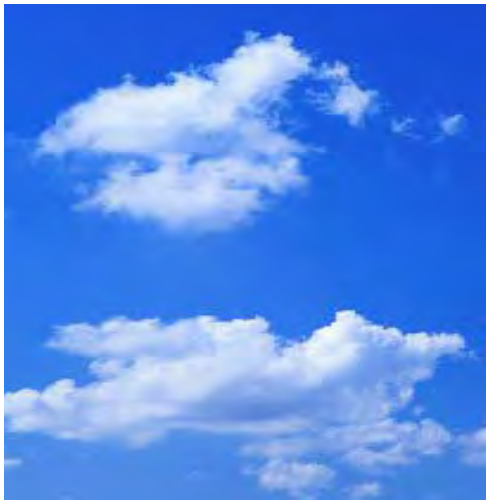
IMPLICATIONS FOR MOVING FORWARD TO 2009

Environmental Considerations

- None of the scenarios meet state adopted GHG targets
- Extensive transit investment reduces VMT, air pollutants and GHGs the most compared to reference
- Reductions in VMT help reduce greenhouse gas emissions
- Other environmental implications not evaluated



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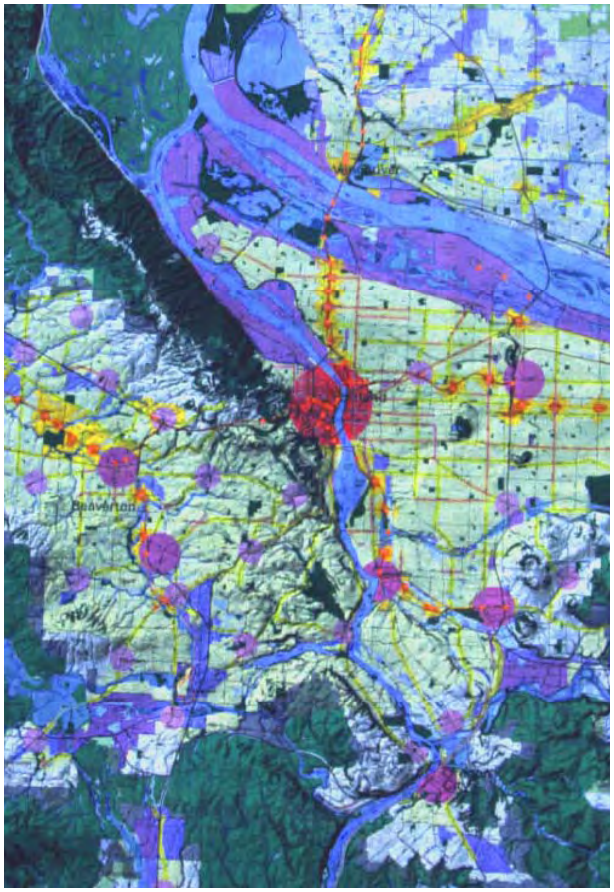
IMPLICATIONS FOR MOVING FORWARD TO 2009

Community Considerations

- Infrastructure alone not sufficient to achieve land use objectives
- Jobs and housing react differently to congestion
- Extensive transit serving centers and corridors triggers growth in these areas the most
- Effects of increased arterial and highway capacity highlight pressure for housing outside UGB



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IMPLICATIONS FOR MOVING FORWARD TO 2009

Economic Considerations

- Need better measures to evaluate
- More efficient transportation system expected to benefit economy
- Increased industry access and reduced truck delay expected to support goods movement and job creation
- Increased downtown and main street access and activity expected to support commerce and job creation
- Spending less of household budgets on transportation expected to allow people to spend money on other things

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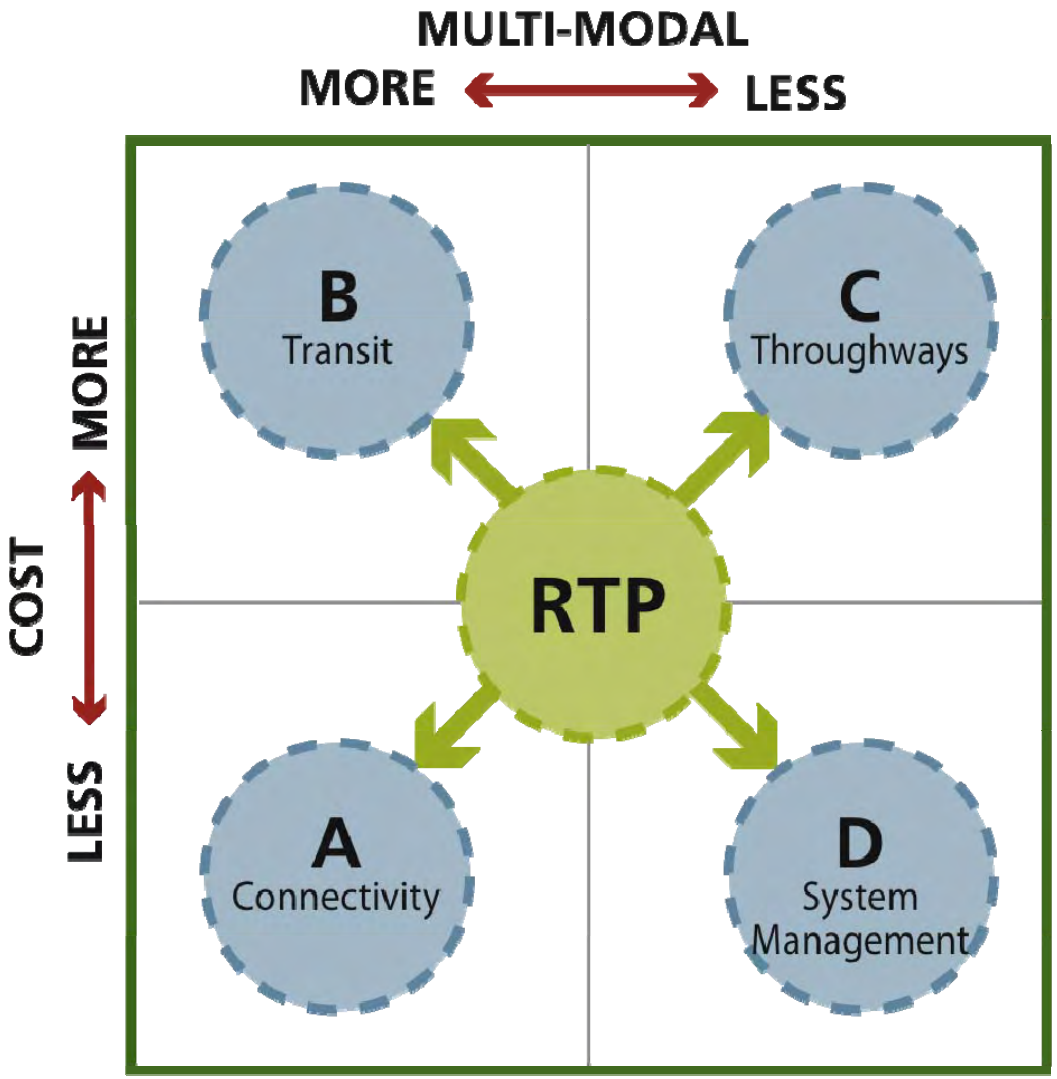
RTP Investment Strategy Direction



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