600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Agenda*

Meeting:	Joint JPACT and MPAC workshop *Climate and Community Prosperity:* *Addressing climate change through developing great communities*
Date:	Friday, April 2, 2010
Time:	8 a.m. to 12:30 p.m.
Place:	Oregon Convention Center, Rooms F150-151
Purpose:	Develop a common understanding of the science of climate change and the impacts of land use and transportation strategies on greenhouse gas (GHG) emissions; identify shared goals, expectations and policy options; commit to the development of a strategy to achieve a healthy climate and great communities.
Outcomes:	Shared commitment to regional climate change action and prioritized policy considerations for greenhouse gas reduction scenarios work

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8 a.m. **Welcome – Metro Chief Operating Officer Michael Jordan**
- *Workshop objectives*

8:05 a.m. **Regional and Local Context – Metro Councilor Carlotta Collette (JPACT chair) and Gresham Mayor Shane Bemis (MPAC chair)**
- *Background, brief review of regional GHG inventory (previously presented to JPACT and MPAC) and GHG scenarios project*
- *Local perspective and examples*

8:15 a.m. **State Context – Oregon Transportation Commission Chair Gail Achterman**
- *Carrying out the Governor's direction on climate change.*
- *How ODOT will partner with the region to carry out this work, and meet the mandate set forth in HB 2001.*

8:25 a.m. **Making the Case for Climate Action – The Science and Implications – Dr. William Moomaw**
- *What causes climate change and how do we know it's changing?*
- *Where are we headed (nationally? internationally?)*

9:30 a.m. **Q & A and group discussion – Michael Jordan, facilitator**
- *Questions for Dr. Moomaw*
- *Discussion*

10 a.m. **BREAK**

10:15 a.m. **Bending the Curve: Getting there from here – Dr. William Moomaw**
- *What can you do about climate change?*
- *How can the region effectively address the state targets for GHG emissions through land use and transportation scenarios work?*

10:45 a.m. **Q & A – Michael Jordan**

Continued on back

11 a.m. **How will we bend the curve? – Small Group Activity**

- *Exercise for participants to brainstorm issues and opportunities to reduce GHG emissions and create livable communities.*
    - *What are the most promising opportunities in your communities?*
    - *What are the issues that arise in making those opportunities happen?*
    - *What are the fears that this process elicits for them as local decision-makers?*

11:40 a.m. **Ranking exercise (worksheets on the tables)**

11:50 a.m. **Observations and final comments – Dr. William Moomaw**

Noon **Next Steps/Adjourn – Michael Jordan**

Noon – 1 p.m. **Lunch** (provided for MPAC, JPACT members, speakers and invited guests)

JPACT members reconvene *to discuss Metropolitan Transportation Improvement program policy direction. MPAC members invited to participate but not required.*

Draft agenda*:*

1 p.m. **Setting the stage for discussion – Michael Jordan**

1:05 p.m. **2012-15 MTIP Policy and 2014-15 Regional Flexible Fund allocation – Ted Leybold**

- *Background*
- *Updates*
- *Questions for JPACT discussion and direction*

1:25 p.m. **JPACT small group discussions**

2:55 p.m. **Final comments and next steps – Michael Jordan**

William Moomaw *is a professor and founding director of the Center for International Environment and Resource Policy at Tufts University and a lead member of the Nobel Prize-winning Intergovernmental Panel on Climate Change (IPCC), a UN-sponsored group of scientists. He has worked on mitigation and adaptation aspects of climate change for more than 20 years. He was the first director of the Climate, Energy and Pollution program at the World Resources Institute. He has been a lead author on five IPCC reports, recognized with the 2007 Nobel Peace Prize, and has written extensively on greenhouse gas emission reductions, renewable energy and other strategies for addressing climate change.*

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Metro | *Memo*

Date: March 29, 2010
To: JPACT and Metro Council
From: Ted Leybold and Amy Rose
Subject: 2012-15 MTIP Policy and 2014-15 Regional Flexible Fund Allocation update

Action Requested: Provide direction on funding targets, outcomes and transportation modes for allocation of local funds through the 2014-15 Regional Flexible Fund allocation process.

Choices for this direction are illustrated in Attachment A.

Background: In preparation for action on a policy report at the May 13th JPACT meeting, you are being asked for policy direction at the April 2nd JPACT retreat.

At the retreat, you will be briefed on the following background material (Attachment B) summarizing:

- State and Federal transportation funding sources
- RTP System Evaluation Performance Indicators
- Metro Area Transportation Finance Approach (to serve as the basis for MTIP modal finance approach)
- Existing Regional Flexible Fund Allocation policies
- Descriptions of regional programs
- Proposed funding targets for Step 1 of the allocation

This background material will provide the context for your direction on creating funding categories for the allocation of regional flexible funds to locally administered projects. In order to improve the responsiveness of project proposals to JPACT/Metro Council policy direction, and increase efficiency, staff is proposing to eliminate the competitive application process for a collaborative project proposal process. This process will take advantage of recent updates to modal and system plans that have engaged a wide range of community stakeholders.

To provide clear guidance to the local agencies on how to meet your policy direction, we propose the creation of funding categories that provide direction on desired performance outcomes, transportation modes to be utilized to achieve those outcomes, and target funding levels for each funding category created. A draft proposal of funding category options, modes and activities (based on historical allocations and the Metro area transportation finance approach), RTP system evaluation performance indicators addressed, and historical spending levels is provided in Attachment B, Step 2 - local funding category options.

In order to successfully implement this process, it will be important to receive as specific direction as possible on desired outcomes and eligible modes. We will also seek your direction on a funding target for each funding category to guide the development of project proposals. Target amounts are for guidance and would be adjustable during final project selection.

To elicit your direction, we will request at the retreat your response to the questions below as we walk through Attachment A.

Given forecasted revenues[1], the performance of our transportation system, and needs and opportunities, should the 2014-15 Regional Flexible Fund allocation process:

1. Create an Active Transportation and Complete Streets funding category with a funding target based on recent historical allocations?

2. Create a Capacity Improvement funding category with a funding target based on recent historical allocations?

3. How can the region be more strategic in utilizing regional flexible funds be more strategic in implementing priorities coming out of the Regional Freight Plan? Should policies establish freight mobility as a priority element of a Capacity Improvements, TSMO or corridor planning activity?

4. In anticipation of an Active Transportation and a Metropolitan Mobility competitive grant program and a State administered Freight improvement program, should the region direct funding from the development and/or preliminary design of a group of Active Transportation projects and/or a group of Capacity Improvement projects to attempt to leverage new federal or state construction funding?

5. Integrate the priority projects identified by Transport and recently completed Transportation System Management & Operations (TSMO) master plan and their associated budget into the local project allocations of the Active Transportation and/or Vehicle Capacity funding categories?

6. Allow eligible stakeholder agencies to propose priority projects for funding from emerging and innovative transportation project/program areas such as diesel emission reduction, new demand management techniques, or culvert retrofits?

Responses to these questions will be utilized to supplement and direct the process by which existing policies will be implemented in the allocation process. A draft policy report documenting the policy direction and allocation process will be provided at future meetings of JPACT and Metro Council for consideration and adoption.

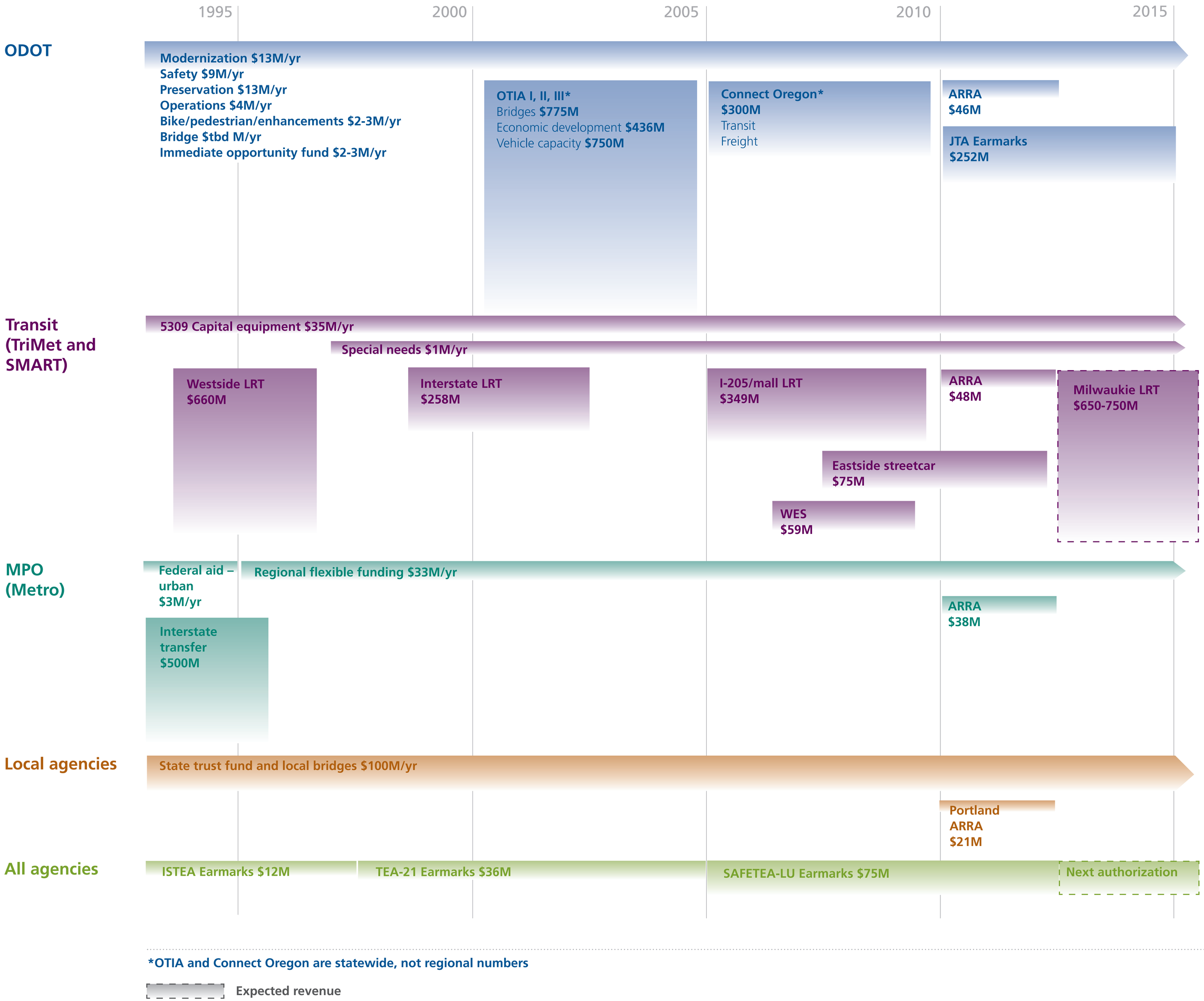
[1] Pending the passage of an authorization bill and further consultation with ODOT Finance, we are forecasting a continuation of previous funding levels with a 3% growth factor, consistent with historical trends.

Attachment A

2014-15 RFFA Step 2 - Local Funding Category Options

Funding Category Options	Modes & activities	Directly Related Performance Outcomes	Historical 2-year average funding level (2010-13)	Opportunities	Recommended target (% of Step 2 funds available)
Active Transportation and Complete Streets	Main Street Retrofits	•Improve Safety •Triple Walk/Bike/Transit mode share •Reduce Vehicle Miles Traveled •Increase access to essential destinations	$8.037 million	•Increase project effectiveness and achieve cost efficiencies by integrating these projects at a sub-regional scale. Build on cooperative planning of complete and seamless routes for bike, walk and transit trips.	
	Transit Access		$2.082 million		
	Bike Lanes & Boulevards		$8.449 million		
	Trails				
	Sidewalks & pedestrian crossings				
	Project development		N/A	•Leverage potential new federal funding program by developing competitive application.	
Capacity Improvement	New Arterial Connections (System Gaps)	• Reduce Vehicle Miles Traveled •Triple Walk/Bike/Transit mode share • Reduce Vehicle Hours of Delay	$1.39 million		
	Arterial Widening		$1.721 million		
	Freight Access		$1.229 million	New regional freight plan identifies policies and projects.	
	Project development		N/A	Leverage potential new federal or state fund programs by developing competitive applications.	
Innovative Practices and Special Projects	Diesel emission reduction	• Ensure low exposure to air pollution	$1.307 million	Potential for immediate air quality improvements and identified as a national policy priority for use of CMAQ funds.	Allow applications? Yes or No
	Culvert retrofit		$.503 million	Listing of threatened and endangered species whose habitat is impacted by the region's transportation system proscribes need for an active mitigation program. Storm water management activities have been integrated into existing projects. Project development begun on 4 top priority culverts of approximately 150 in region.	
	New Activities		N/A	Opportunities to invest in innovative or newly emerging programs & projects.	Optional funding target _____%

Federal and State Capital Investments in the Portland Metropolitan Region



*OTIA and Connect Oregon are statewide, not regional numbers

Expected revenue

Attachment B

RTP System Evaluation Performance Indicators

Recommended System Evaluation Measures		RTP Goals									
		Foster Vibrant Communities and Compact Urban Form	Sustain Economic Competitiveness and Prosperity	Expand Transportation Choices	Effective and Efficient Management of Transportation System	Enhance Safety and Security	Promote Environmental Stewardship	Enhance Human Health	Ensure Equity	Ensure Fiscal Stewardship	Deliver Accountability
1.	Vehicle miles traveled (total and per capita)	●				*Unable to predict/forecast system safety. To be addressed in plan monitoring.*	●	●			*Unable to predict/forecast accountability. To be addressed in plan monitoring.*
2.	Total delay and cost of delay on the regional freight network in mid-day and PM peak		●		●						
3.	Motor vehicle and transit travel time between key origin-destinations for mid-day and 2-HR PM peak	●	●	●	●						
4.	Congestion - Location of throughways, arterials, and regional freight network facilities that exceed RTP motor vehicle-based level of service thresholds in mid-day and 2-HR PM peak		●		●						
5.	Mode share and non-drive alone trips system-wide, by mobility corridor and for central city and individual regional centers (*Number of daily walking, bicycling, shared ride and transit trips and % by mode)*	●		●	●		●	●			
6.	Transit productivity *(transit boarding rides per revenue hour)* for High Capacity Transit (HCT) and bus	●		●						●	
7.	Number and percent of homes within ½-mile of regional trail system			●			●	●	●		
8.	Number and percent of homes and environmental justice communities (census data) within ½-mile of HCT or ¼-mile frequent bus service			●					●		
9.	Tons of transportation-related air pollutants (e.g. CO, ozone, and PM-10)			●			●	●			
10.	Tons of transportation-related greenhouse gas emissions (e.g. CO_2)			●			●				
11.	Percent of projects that intersect high value habitat areas	●					●				
Additional land use-related measures to be developed as part of the *Making the Greatest Place.*											

Attachment B

Metro Area Transportation Finance Approach

Transportation Project/Activity Type	**Existing Funding Sources**	**Strategy for Sources of Additional Funding**
Local/Arterial Street reconstruction/maintenance	• State pass through • Street utility fees • Local portion of HBRR • OTIA	• Increases in state gas tax or VRF • New street utility fees or equivalent
Main Street/Boulevard multi-modal retrofit	• **Regional Flexible Funds**	No expansion strategy discussed
Active Transportation	• **Regional Flexible Funds** • Transportation Enhancement	• New federal program • State Urban Trail Fund • New local funds
Highway preservation	• Interstate Maintenance • State gas & w/m • HBRR • OTIA	• Increases in state gas tax or VRF
Transit Operations	• Employer tax • Passenger fares • Section 5307 • New Freedom • JARC	• Employer tax rate • New funding mechanism • Increase fares
Arterial Expansion	• Development (Frontage, Impact Fees, SDC's) • Urban Renewal • OTIA	• SDC rate increases • Regional VRF pass through or equivalent
Highway expansion	• Modernization Program • OTIA • Fed/state earmarks	• More from existing sources • New federal Metropolitan mobility program • Pricing/tolling • Regional VRF or equivalent
HCT expansion	• Federal New Starts • State lottery • **Regional Flexible Funds** • TriMet General Fund • Local contributions	• More from existing sources
TSMO	• State Operations • **Regional Flexible Funds**	• State Modernization • Regional VRF or equivalent
Land Use – TOD	• **Regional Flexible Funds**	• Strategy under development

Attachment B

Existing Policies
Regional Flexible Fund Allocation

A. RFFA process policy objectives

1. Select projects from throughout the region, however, consistent with federal rules, there is no sub-allocation formula or commitment to a particular distribution of funds to any sub-area of the region.
2. Honor previous funding commitments made by JPACT and the Metro Council.
3 Address air quality requirements by ensuring air quality Transportation Control Measures for pedestrian and bicycle improvements are met and that an adequate pool of CMAQ eligible projects are available for funding.
4. Achieve multiple transportation policy objectives.
5. Allow use of regional flexible funds for project development and local match of large-scale projects (greater than $10 million) that compete well in addressing MTIP Policy objectives when there is a strong potential to leverage other sources of discretionary funding.
6. Encourage the application of projects that efficiently and cost-effectively make use of federal funds.
7. Recognize the difference in transportation infrastructure investment needs relative to an areas stage of development (developed, developing, undeveloped) consistent with RTP Table 3.2.

B. Project and program services policy objectives

1. Retain and attract housing and jobs by addressing system gaps or deficiencies to improve multi-modal access in primary 2040 target areas (central city, regional centers, industrial areas and passenger and freight inter-modal facilities) as the highest priority, secondary areas (employment areas, town centers, main streets, station communities and corridors) as next highest priority, and other areas (inner and outer neighborhoods) as the lowest priority (see table 1 below).

Table 1. 2040 Target Areas and Hierarchy of Design Types

2040 Target Areas		
Primary land-uses	**Secondary land-uses**	**Other urban land-uses**
• Central city • Regional centers • Industrial areas • Freight and Passenger Intermodal facilities	• Employment areas • Town centers • Station Communities • Corridors • Main Streets	• Inner neighborhoods • Outer neighborhoods

2. Address gaps and deficiencies in the reliable movement of freight and goods on the RTP regional freight system, and transit, pedestrian and bicycle access and inter-modal connections to labor markets and trade areas within or between 2040 target areas (Primary areas are highest priority, Secondary areas are next highest priority, other areas are lowest priority).

3. Provide access to transportation options for underserved populations (low income populations and elderly and people with disabilities).

4. Invest in Transportation System Management and Operations (TSMO) in regional mobility corridors.

5. Address recurring safety issues, including gaps in the bike and pedestrian system.

6. Minimize noise, impervious surfaces, storm-water run-off and other pollution impacts.

7. Reduce and minimize energy consumption, carbon emissions and other air pollution impacts.

8. The project mode or program service type has no other or limited sources of transportation-related funding dedicated to or available for its use.

9. Efficient and cost effective use of federal funds.

C. Project eligibility and screening criteria

1. Eligible applicants must be sponsored by a public agency
2. Projects must be in the RTP Financially Constrained system (limited air quality exempt projects may be substituted)
3. Must be consistent with any defined project cost limits per category or sub-regional cost targets (to be updated per Policy report)
4. Must be submitted consistent with solicitation category (to be updated per Policy report)
5. Must meet minimum administrative screening criteria (complete application, etc.)
6. Approved projects subject to conditions of approval:
    a. Signage and public notice requirements
    b. Meet regional street design guidelines
    c. Meet regional storm water management guidelines
    d. Consistent with functional and street design classifications

Attachment B

Transit Oriented Development Program

Program Description

Metro's Transit Oriented Development (TOD) program works directly with developers and local jurisdictions to create vibrant downtowns, main streets and station areas by helping to change land use patterns near transit. The Program attracts private investment in construction of compact and mixed-use buildings that:

- Brings people to live and work within walking distance of high quality transit, Station Communities, and Regional and Town Centers;
- Creates new market comparables for more compact development ;
- Cultivates developers with expertise in compact and mixed-use building in suburban settings;
- Increases acceptance of urban style buildings through high quality design; and
- Contributes to placemaking and local identity.

Public-private development partnerships are necessary because planning and zoning alone are not enough to make TOD projects financially feasible in most areas outside of Portland's city center. To overcome market barriers, Metro offers financial incentives to offset the higher costs of compact development by purchasing transit-oriented development easements from developers and, in some cases, acquiring and selling land near transit at a reduced cost. Metro's role as a financial partner in TOD projects can leverage other public support; local and state agencies have helped to spur development by reducing entitlement risk, expediting permitting, authorizing tax abatements, making related public improvements, and providing project financing .

Since the Program's inception 12 years ago, the twenty (20) completed or currently under construction TOD projects have leveraged over $300 million in development to build 2,100 housing units (including 1,200 affordable units), 100,000 sq. ft. of retail and restaurant space, and 140,000 sq. ft. of office space. By increasing the intensity of land uses close to transit, people have been induced to use transit more, and drive less: more than half a million (543,000) trips are being taken by transit *every year* as a direct result of TOD projects built. This improves the cost-effectiveness of regional transit system investments. By building at higher densities these projects have also relieved pressure on the urban growth boundary, using only 80 acres where conventional development would have taken over 500 acres. Project investments and commitments have been made in twenty-four (24) station communities located in jurisdictions throughout the region: Beaverton; Clackamas County; Gresham; Hillsboro (Regional Center and Orenco Town Center); Milwaukie; Portland (Central City and Gateway Regional Center); Tigard; and Washington County.

Recent Policy Work

A TOD Program Strategic Plan is currently being prepared to guide the cost-effective allocation of limited TOD funding. Across the region, existing conditions and development economics are being evaluated in Station Communities, Centers and areas with high quality transit to develop a system-wide TOD station and corridor typology. This will clarify the types of investments that can most effectively help to realize each jurisdiction's local aspirations for these areas. Various stakeholder groups, including local planning and redevelopment staff, have been invited to contribute to this planning process. It is anticipated the TOD Strategic Plan will be completed in fall 2010.

Opportunities

The regional light rail transit system has doubled in size while the TOD Program funding levels have remained relatively constant. An additional $1 million would finance public-private partnerships to construct 3-5 compact, mixed use projects in Station Communities or Centers around the region.

Metro Planning

Attachment B

Program Description

MPO-Required Planning - Allocation of Regional Flexible Funds to Metro provides support for meeting MPO mandates, established through federal transportation authorization bills. Examples of these requirements include:

- Development and adoption of a long-range plan (RTP)
- Development and adoption of a short-range transportation improvement program (TIP)
- Development and maintenance of a long-range and TIP financial plan tracking projected revenues and maintaining fiscal constraint of the plan and TIP
- Support for a decision-making structure that includes local governments and state and regional transportation providers
- Maintenance of travel demand models for planning by Metro, local governments and state and regional transportation service providers
- Maintenance of land use, economic, demographic, GIS and aerial photo services for planning by Metro, local governments, and state and regional transportation providers
- Support of freight planning, including facilitation of a regional freight advisory committee, participation in state freight planning and development of a freight component to the RTP
- Compliance with federal certification requirements, including public participation, Environmental Justice, air quality, coordination with environmental resource agencies, grants and contracting requirements

This element of the allocation of Regional Flexible Funds came about in the mid-1980s when Metro abandoned the assessment of local government dues on cities and counties, TriMet and the Port of Portland. The amount allocated has been consistent over time with an inflation factor applied.

Proposed Allocation: This should be viewed as the Base allocation in the Planning category. The proposed allocation is $2.244 million for the 2-year period including a 3% per year escalator.

Next Corridor Program Attachment B

Program Description

The Corridor Refinement Plan Work Program was adopted as an amendment to the Regional Transportation Plan in the fall of 2001 (Resolution 01-3089). MTIP funding for the Next Corridors program has been the vehicle through which Metro has partially funded refinement planning within these corridors. MTIP Funding has generally been at the level of $500,000 every two years. This sum has remained constant over the past ten years, although the cost and complexity of corridor plans has increased. For the past two cycles, this funding was directed to the High Capacity Transit System Plan to prioritize the next 30 years of high capacity investments.

The 2035 RTP introduced the concept of regional mobility corridors, expanding the region's focus on mobility from individual facilities to the network of facilities and the adjacent land uses they serve. The 24 mobility corridors provide a framework for consideration of multiple facilities, modes and land use when identifying needs and most effective mix of land use and transportation solutions to improve mobility within a specific corridor area. This emphasizes the integration of land use and transportation in determining regional system needs, functions, desired outcomes, performance measures, and investment strategies. At the same time, the mobility corridors are being used to satisfy state requirements for demonstrating the adequacy of the region's transportation system and its planned land uses.

Previous and Future Allocations

MTIP Next Corridor allocations are as follows:

Fiscal Year	Activity	Amount Spent/Underway/Requested
FY 02/03	I-5 Trade Corridor	$250,000 (spent)
FY 04/05	Powell/Foster	$300,000 (spent)
FY 06/07 & FY 08/09	High Capacity Transit System Plan	$500,000 (spent) + $500,000 (spent)
FY 10/11	Southwest and East Metro	$300,000 (underway)
		+ $200,000 from FY 06/07 (underway)
FY 12/13	Next Corridor and Advance Work*	$500,000 potential some allocation to Southwest Corridor (approved)
FY 14/15	Next Corridor and Advance Work*	$1,000,000 (requested)

*Next Corridor and Advance work would be allocated to refinement planning of the remaining Mobility Corridors identified in the 2035 RTP. (Advance work would be applied to up-front prioritization and partnering necessary to begin projects.) These are (priority to be determined):

- Mobility Corridor #24 - Beaverton to Forest Grove, which includes Tualatin Valley Highway
- Mobility Corridors #3 and #20 – Tigard Triangle to Wilsonville, which includes I-5 South, and to Sherwood (portions not included in Southwest Corridor Refinement Plan)
- Mobility Corridors #7, #8 & #9 -Clark County to I-5 via Gateway, Oregon City and Tualatin, which includes I-205
- Mobility Corridor #4 – Portland Central City Loop, which includes I-5/I-405 Loop

Next Corridor Program Attachment B

Current Commitments

Metro Council approved Resolution # 10-4119 on February 25, 2010, which prioritized two corridors for refinement planning: Mobility Corridor #15 (East Metro connecting I-84 and US 26) and Mobility Corridors #2 and # 20 (the "Southwest" corridor in the vicinity of I-5/Barbur Blvd, from Portland Central City to approximately the "Tigard Triangle").

The estimated costs and time to complete these two refinement plans, both of which are still in the scoping phase, is approximately $3.3 million over the next three years. Available MTIP funding won't cover the entire amount of these plans, nor is it expected to. Other sources could include state Transportation Growth Management funds and local contributions. The Southwest corridor may require some amount of the FY12/13 MTIP funds for completion.

Future Commitments/Request

Based on the scoping of current commitments, and the region's need to complete the remaining future refinement plans in the prioritized mobility corridors, it is requested that the current FY 14/15 MTIP contribution toward Next Corridor Refinement Planning be approved at $1 million.

Next Corridors Opportunities:

- Support an expanded Next Corridor MTIP strategy to implement the mobility corridor strategy refinement planning; and
- Respond to related local jurisdiction needs for technical assistance on local transportation and land use plans; and
- Keep pace with increased cost, complexity and schedule of multimodal corridor refinement planning as the mobility corridor strategy evolves and is implemented.

Regional Travel Options Program Attachment B

The Regional Travel Options (RTO) program is the region's Transportation Demand Management (TDM) strategy for reducing reliance on the single-occupancy automobile. The program is central to the region's efforts to maintain "attainment" status with Federal air quality requirements and implementation of the Congestion Management Process (CMP). The program's effectiveness in meeting these goals is monitored on an ongoing basis through a system of detailed evaluations of individual components and employer surveys, and is documented in bi-annual reports published by Metro.

The key components of the RTO program are:

- Collaborative marketing program that coordinates the marketing activities of program partners and supports implementation of the Drive Less/Save More campaign in the Portland metropolitan area;
- Commuter services program that conducts outreach to employers and commuters and supports the development of work site travel options programs;
- Traveler information tools program that works to develop and enhance traveler information related to ridesharing, biking, walking and transit use;
- Transportation Management Association (TMA) program that provides grants to five area TMAs to support local trip reduction activities;
- Grant program that provides support to local and regional travel options projects through a competitive project solicitation process, including grants to support large-scale residential individualized marketing projects ;
- Measurement program that collects data on the outcomes of RTO funded projects and programs and reports progress on meeting program goals to aid decision-making; and
- A policy and funding program that supports the development of TDM policies and the RTO Subcommittee of TPAC, and coordinates RTO investments with other regional programs.

The RTO program has been funded for more than twenty years, and has grown to include a variety of regional partners and outreach programs proven to reduce travel demand and encourage alternatives to driving alone. In 2008, the Metro Council approved a new five-year strategic plan for the RTO program that provides the framework for RTO policy development and program activities. The updated program continues work begun in the 2003 RTO Strategic Plan, which placed a major emphasis on marketing and outreach. Metro manages and administers the regional program, measures results, and provides assistance to partners. Public and private partners carry out local strategies through grant agreements. Collaboration among partners is emphasized to leverage resources, avoid duplication and maximize program impacts.

The RTO program implements regional policies to reduce drive-alone auto trips and personal vehicle miles of travel and to increase use of travel options. The program improves mobility and reduces pollution by carrying out the TDM components of the Transportation System Management and Operations (TSMO) strategy outlined in the 2035 Regional Transportation Plan (RTP).

The program maximizes investments in the transportation system and relieves traffic congestion by managing travel demand, particularly during peak commute hours. RTO strategies are expected to reduce approximately 86,600,000 vehicle miles of travel (VMT) per year from 2008 to 2013. By 2013, this represents over a 100% increase over 2006 VMT reductions produced by the program. The expected increase in VMT reductions is based upon past program performance, expected revenues, and improving measurement and cost-effective investments.

Regional Mobility Program Attachment B

Program description

The **Regional Mobility** program coordinates both the planning and implementation of the region's system management and operations strategies to enhance multimodal mobility for people and goods. The activities of this program focus on proactive management of the multimodal transportation system through:

- Multimodal traffic management strategies to reduce travel times and vehicle emissions;
- Traveler information to help system users make informed decisions and avoid congestion; and
- Traffic incident management to reduce crashes and delay, and improve traveler safety

The program also supports the implementation of the region's Congestion Management Process (CMP) by implementing lower cost, high benefit operational improvements for congestion and safety; and by enhancing the region's real-time data collection capabilities in support of performance monitoring. The Regional Mobility program activities are guided by TransPort, the regional advisory committee on system operations.

The benefits of TSMO investment include:

- Improve travel time reliability
- Reduce crashes
- Improve transit on-time arrival
- Reduce travel delay
- Reduce fuel use
- Reduce air pollution and carbon emission

Recent policy work

The region completed a Regional Transportation System Management and Operations Plan in December 2009. The plan is a road map to guide transportation management solutions for the next 10 years. The plan will become part of the final 2035 Regional Transportation Plan scheduled for approval in June 2010.

The plan has four focus areas for investment – multimodal traffic management, traffic incident management, traveler information, and transportation demand management. It identifies both program and infrastructure investments under each focus area. The RTO program advances the transportation demand management investments.

Opportunities

With the completion of the Regional TSMO plan, TransPort is now focused on implementation. The Regional Mobility program is supported with a total regional flexible fund allocation of $6 million for FY2010 – 2013. These funds will support both region-wide initiatives such as the PORTAL data archive enhancement and concept development and targeted corridor investments such as advance traffic signal systems. Looking ahead to 2014-15, there is an abundance of opportunities to advance management solutions that benefit the traveling public in the Portland region. Continued investment in creating a 21st century traffic management system means upgrading existing equipment that serves all modes, maintaining current signal timing, and maximizing the system's data collection capabilities. Enhancing traveler information means harnessing the region's data collection efforts to provide real-time travel information. Traffic incident management investments in surveillance for faster incident detection, active traffic management tools, and inter-agency communications can reduce incident-related congestion and restore system capacity.

Objectives

- Enhance coordination of RTP and Regional Mobility strategies and investments. (ONGOING)
- Seek new opportunities for funding regional TSMO strategies. (ONGOING)

- Coordinate with Making the Greatest Place and Transportation Implementation activities to ensure consideration and integration of TSMO strategies. (ONGOING)
- Implement TSMO strategies that support the regional CMP. (ONGOING)

High Capacity Transit Program Attachment B

High Capacity Transit (HCT) Program Description

This region's celebrated quality of life is in no small part a result of careful transportation and land use planning. Transit is an integral part of the region's culture and identity. For 30 years the region has made light rail transit, now supplemented with commuter rail, the basis for the regional high capacity transit (HCT) system. Each addition has had exponential benefits and the system must be completed if it is to respond to the region's continued growth.

For the past year, Metro has been developing a 30-year plan to guide investments in light rail, commuter rail, bus rapid transit and rapid streetcar in the Portland metro region to be included in the Regional Transportation Plan. The Regional High Capacity Transit System Plan ranks 16 potential high capacity transit corridors in four regional priority tiers and creates a framework for future system expansion. With the completion of this plan the region now has a clear, consensus-based plan on which projects should advance for the next 30 years. The HCT Program MTIP funding will provide supplemental resources necessary to implement the Regional Transportation Plan and the Regional High Capacity Transit Plan in order to complete the region's list of 16 high capacity transit projects.

Previous and Future Allocations

For the FY 2010-2013 MTIP Cycles, the region chose to support the federal Alternatives Analysis for the Portland-Milwaukie LRT and the Lake Oswego to Portland Streetcar. This funding helped keep the pace of the projects going when federal AA funding was not immediately available. This allowed the preparatory work necessary for the projects to be competitive to win federal funding when the opportunities arise, and to maintain a steady flow of projects advancing in the region.

MTIP Next Corridor allocations are as follows:

	Regional High Capacity Transit Funding (millions)			
Federal Fiscal Year	**Existing Commitment**		**New Request**	**Total Existing and New**
	HCT Capital	**HCT Project Development[1]**		
2010	$ 9.3	$1.0		$ 9.3
2011	$ 9.3	$1.0		$ 9.3
2012	$ 13.0	$2.0		$ 13.0
2013	$ 13.0	$2.0		$ 13.0
2014	$ 13.0		**$ 2.0**	**$ 15.0**
2015	$ 13.0		**$ 2.0**	**$ 15.0**
2016	$ 13.0			$ 13.0
2017	$ 13.0			$ 13.0
2018	$ 13.0			$ 13.0
2019	$ 13.0			$ 13.0
2020	$ 13.0			$ 13.0
2021	$ 13.0			$ 13.0
2022	$ 13.0			$ 13.0
2023	$ 13.0			$ 13.0
2024	$ 13.0			$ 13.0
2025	$ 13.0			$ 13.0
Total in Millions	$200.6	$6.0	$4.0	$204.6

[1] Commitments for Alternatives Analysis for Lake Oswego to Portland Streetcar and Portland-Milwaukie LRT

Attachment B

Current Commitments

Current commitments include RFFA funds for the capital HCT projects of Milwaukie LRT and the WES Commuter Rail. HCT Project Development supports the AA work necessary for the Lake Oswego to Portland Streetcar and the Portland-Milwaukie LRT Projects.

Future Commitments/Request

Metro Council approved Resolution # 10-4118 on February 25, 2010, and JPACT on January 14, 2010, which prioritized the Southwest high capacity transit corridor as the region's next priority for advancement (the "Southwest" corridor in the vicinity of I-5/Barbur Blvd, from Portland Central City to Sherwood).

A request of $4 million for FY14/15 is requested to ensure progress is made on the region's current HCT priority – the Southwest HCT corridor. Federal appropriations for the region's HCT priorities may not be in sync with our region's desire to move projects forward at the region's desired pace. Likewise, federal funding may allow other corridors to advance if full federal funding becomes available for the Southwest Corridor.

These funds would be managed through an Intergovernmental Agreement between TriMet and Metro, consistent with an existing agreement managing the MTIP contributions to the South Corridor Green Line, Commuter Rail and North Macadam projects.

Attachment B

2014-15 RFFA Proposed Regional Funding Targets for Step 1

Funding Category Options	Modes & Activities	Directly Related Performance Outcomes	Program Purpose & recent accomplishments	Base Funding Target [1]
Land Use & Transit Oriented Development	TOD Program and site specific projects	• Reduce Carbon Dioxide • Triple Walk/Bike/Transit mode share • Reduce Vehicle Miles Traveled • Increase access to essential destinations	Establish Market comparables to lead desired development in 2040 mixed-use areas, increase utilization of existing transportation infrastructure. The TOD program has completed and begun 20 projects in the last 12 years, resulting in 2,100 housing units, 100,000 sq. ft. of retail space and 140,000 sq. ft. of office space, all near high capacity transit.	$5.95 million
Project Development	Metro Planning	All Goals addressed	Replaced local dues based support for MPO activities - ensure compliance with federal regulations and support implementation of growth management policies.	$2.244 million
	Corridor & Systems Planning	All Goals addressed	Identify and refine sub-area project priorities that best address needs and implement growth management policies. Last two cycles of funding enabled the completion of the High Capacity Transit System plan.	$1 million [2]
System and Demand Management	Regional Travel Options program (Demand Management)	• Reduce Carbon Dioxide • Triple Walk/Bike/Transit mode share • Reduce Vehicle Miles Traveled	Reduce need for capacity projects through marketing, employee programs and small capital grants. RTO strategies are expected to reduce approximately 86,600,000 vehicle miles of travel (VMT) per year from 2008 to 2013.	$4.539 million
	Multi-modal traffic management Traveler Information Traffic incident management	• Improve Safety • Reduce Vehicle Hours of Delay • Reduce Carbon Dioxide	Increase capacity, safety and the ability to analyze the performance of the existing network. TSMO master plan identifies policy and project priorities.	$3 million
High Capacity Transit Program	Light rail & Streetcar construction project development	• Triple Walk/Bike/Transit mode share • Reduce Vehicle Miles Travelled • Increase access to essential destinations	•Existing commitment - no new construction projects ready at this time. •Project development: Barbur HCT AA/DEIS.	$26 million $4 million

(1) Based on historical program allocation plus 3% annual inflation to address program purchasing power.

(2) An increase of $500,000 from historical allocations to address faster delivery of corridor plans and additional multi-modal scope planning activities needed to deliver plans.

2012-15 MTIP Policy

Directing Federal Transportation Investments

METRO

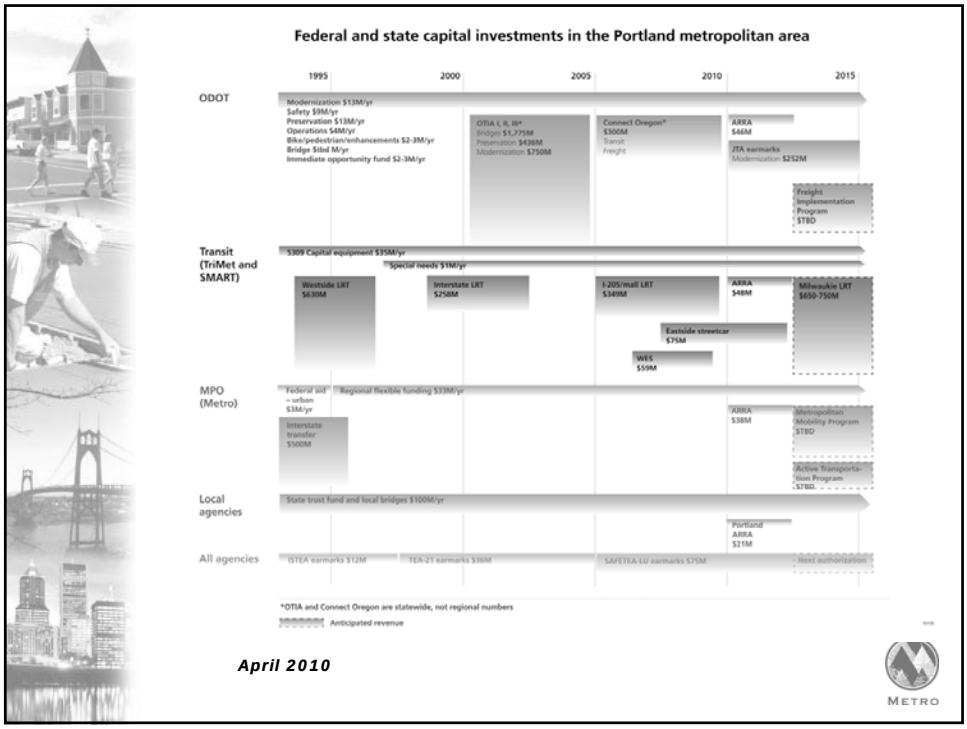
2012-15 MTIP Policy Update

Transportation Funding Administration in the Region

- ODOT
- Transit
- MPO
- Local Agencies

April 2010

METRO



April 2010

METRO

2012-15 MTIP Policy Update

MTIP Policy Inputs

- ❖ RTP Outcomes, Goals & Objectives
- ❖ RTP Performance Targets
- ❖ RTP Modal Finance Approach
- ❖ Opportunities

April 2010

METRO

2012-15 MTIP Policy Update

RTP Outcomes, Goals & Objectives

- Six Desired Outcomes for Regional Planning
- Ten goals describing transportation vision
- Two to five objectives per goal

April 2010

METRO

2012-15 MTIP Policy Update

Regional Transportation Performance Targets

- Measures regional system performance to ten target outcomes
  - Safety
  - Congestion
  - Freight reliability
  - Climate change
  - Active transportation
  - Complete infrastructure
  - Clean air
  - Travel reduction
  - Affordability
  - Access to daily needs

April 2010

METRO

2012-15 MTIP Policy Update

RTP Modal Finance Approach

- Categorize transportation activities by mode type
- Identifies existing funding sources used for each activity
- Strategies for additional funding
- Basis for re-establishing MTIP modal policy direction

April 2010

METRO

2012-15 MTIP Policy Update

Opportunities

- Build on recent system plan and policy activities
  - Regional Transportation Plan
  - Transportation System Management & Operations Plan
  - Regional Freight Plan
  - Green Ribbon Committee work
  - Transportation Options performance audit
- Federal and state discretionary funds

April 2010

METRO

2012-15 MTIP Policy Update

Regional Flexible Fund Allocation (RFFA)

Updated Decision Process:

- Set Policy Direction
- Solicit Stakeholder input on priorities
- Local agency project proposals
- Final public comment and narrowing
- Allocation decision

April 2010

METRO

2012-15 MTIP Policy Update

Regional Flexible Fund Allocation (RFFA)

Policy Direction:

- Build from existing RFFA policies
- Performance on outcomes frames decision
- Consider modes to achieve outcomes
- Consider opportunities
- Consider historical allocation levels
- Provide direction on Categories, Modes, and Funding Targets

April 2010

METRO

2012-15 MTIP Policy Update

Setting Policy Direction

- April 2nd Retreat: Receive input on policy direction
- May 13th Meeting: Consider draft policy report with options
- June 10th Meeting: Adopt policy direction report

April 2010

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2012-15 MTIP Policy Update

Handout Materials

- Summary of process changes
- Step 1 allocation proposal (historical trend)
- Step 2 proposed funding categories and historical allocation summary
- Policy questions

April 2010

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2012-15 MTIP Policy Update

Policy Question #1

Are the proposed funding categories a helpful framework for soliciting local project nominations?

April 2010

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2012-15 MTIP Policy Update

Policy Question #2

Are the historical allocation levels to these funding categories appropriate for the next allocation?

April 2010

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2012-15 MTIP Policy Update

Policy Question #3

In anticipation of new federal Metropolitan Mobility, Active Transportation, and Freight Improvement grant programs or other new state funding, should the region direct funding for the development of projects and applications to leverage construction funding?

April 2010

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2012-15 MTIP Policy Update

Policy Question #4

Should policies be developed to more precisely define how regional flexible funds should be utilized to advance freight mobility? Are there any specific options you want to consider?

April 2010

METRO

600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Memo*

Updated

Date: April 2, 2010
To: JPACT and Metro Council
From: Ted Leybold and Amy Rose
Subject: 2012-15 MTIP Policy and 2014-15 Regional Flexible Fund Allocation update

Action Requested: Provide direction on funding targets, outcomes and transportation modes for allocation of funds to local projects through the 2014-15 Regional Flexible Fund process.

Choices for this direction are illustrated in Table 3.

Background: In preparation for deliberation on a draft policy report at the May 13th JPACT meeting, and action on the policy report at the June 10th meeting, you are being asked for policy direction at the April 2nd JPACT retreat.

At the retreat, will provide an overview of the following background material:

- State and Federal transportation funding sources
- Regional Transportation Performance Targets
- RTP Modal Finance Strategy
- Existing Regional Flexible Fund Allocation policies
- Descriptions of regional programs

This background material will provide the context for your direction on creating funding categories for the allocation of regional flexible funds to locally administered projects. In order to improve the responsiveness of project proposals to JPACT/Metro Council policy direction, and increase efficiency, staff is proposing to change the competitive application process to a collaborative project proposal process. This process will take advantage of recent updates to modal and system plans that have engaged a wide range of community stakeholders. Proposed changes to the process are summarized in Table 1.

To provide clear guidance to the local agencies on how to meet your policy direction, we propose the creation of funding categories that provide direction on desired performance outcomes, transportation modes to be utilized to achieve those outcomes, and target funding levels for each funding category created. A draft proposal to frame the proposed process of funding category options, modes and activities is provided in Attachment B, Step 2 - local funding category options. This table is populated with data based on historical allocations and the Metro area transportation finance approach, RTP system evaluation performance indicators addressed, and historical spending levels.

In order to successfully implement this process, it will be important to receive direction on specific desired outcomes and eligible modes. We will also seek your direction on a funding target for each funding category to guide the development of project proposals. Target amounts are for guidance and would be adjustable during final project selection.

Table 1

Regional Flexible Fund Local Allocation Process
Summary of Changes

	Pre-2009	2009	2011 (Proposed)
Policy Direction	Modal Categories • Transit • Road Capacity • Pedestrian • Bicycle & Trail • Etc.	Outcome Categories • Centers • Industrial access • Mobility corridors • Environmental	Funding Categories with direction on Outcome, Mode and Fund Target • TBD
Reason for Change		• Policy direction on outcomes • Concentrate investments	• More precise policy direction • Recognizes modal finance policy issues • Fund target ensures project options of appropriate scale that meet policy direction on outcome & mode
Local Project Selection Process	• Competitive applications	• Competitive applications • Two-step process (regional programs and local projects)	• Collaborative project nomination • Two-step process
Reason for Change		• Process efficiencies and realistic local expectations	• Better define shared regional and local goals & objectives • Better engages stakeholders from recent planning activities • Opportunity to pursue discretionary revenue - Transit New Starts - Metropolitan Mobility - Active Transportation - Freight Mobility

Table 2

Step 1

2014-15 RFFA Proposed Funding Targets

Funding Category Options	Modes & Activities	Directly Related Performance Outcomes	Program Purpose & recent accomplishments	Base Funding Target [1]
Land Use & Transit Oriented Development	TOD Program and site specific projects	• Reduce Carbon Dioxide • Triple Walk/Bike/Transit mode share • Reduce Vehicle Miles Traveled • Increase access to essential destinations	Establish Market comparables to lead desired development in 2040 mixed-use areas, increase utilization of existing transportation infrastructure. The TOD program has completed and begun 20 projects in the last 12 years, resulting in 2,100 housing units, 100,000 sq. ft. of retail space and 140,000 sq. ft. of office space, all near high capacity transit.	$5.95 million
Project Development	Metro Planning	All Goals addressed	Replaced local dues based support for MPO activities - ensure compliance with federal regulations and support implementation of growth management policies.	$2.244 million
	Corridor & Systems Planning	All Goals addressed	Identify and refine sub-area project priorities that best address needs and implement growth management policies. Last two cycles of funding enabled the completion of the High Capacity Transit System plan.	$1 million [2]
System and Demand Management	Regional Travel Options program (Demand Management)	• Reduce Carbon Dioxide • Triple Walk/Bike/Transit mode share • Reduce Vehicle Miles Traveled	Reduce need for capacity projects through marketing, employee programs and small capital grants. RTO strategies are expected to reduce approximately 86,600,000 vehicle miles of travel (VMT) per year from 2008 to 2013.	$4.539 million
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(1) Based on historical program allocation plus 3% annual inflation to address program purchasing power.

(2) An increase of $500,000 from historical allocations to address faster delivery of corridor plans and additional multi-modal scope planning activities needed to deliver plans.

Step 2

2014-15 RFFA - Local Funding Category Options

Funding Category Options	Modes & activities	Directly Related Performance Targets	Historical 2-year average funding level (2010-13)	Opportunities
Arterial System Completion	New Arterial Connections (System Gaps)	• Reduce Vehicle Miles Traveled	$1.39 million	
	Arterial Widening	•Triple Walk/Bike/Transit mode share	$1.721 million	
	Freight Access	• Reduce Vehicle Hours of Delay	$1.229 million	New regional freight plan has identified priority projects. • Define fund target for freight project development or small-scale project
	Project development			Leverage potential new federal or state fund programs by developing competitive applications.
Sub-total:			**$4.34 million**	
Active Transportation and Complete Streets	Main Street Retrofits	•Improve Safety	$8.037 million	• Increase project effectiveness and achieve cost efficiencies by integrating these projects at a sub-regional scale. Build on cooperative planning of complete and seamless routes for bike, walk and transit trips.
	Transit Access	•Triple Walk/Bike/Transit mode share	$2.082 million	
	Bike Lanes & Boulevards	•Reduce Vehicle Miles Traveled	$8.449 million	
	Trails	•Increase access to essential destinations		
	Sidewalks & pedestrian crossings			
	Project development			• Leverage potential new federal funding program by developing competitive application.
Sub-total:			**$18.568 million**	
Innovative Practices and Special Projects	Diesel emission reduction	• Ensure low exposure to air pollution	$1.307 million	Potential for immediate air quality improvements and identified as a national policy priority for use of CMAQ funds.
	Culvert retrofit		$.503 million	Listing of threatened and endangered species whose habitat is impacted by the region's transportation system proscribes need for an active mitigation program. Storm water management activities have been integrated into existing projects. Project development begun on 4 top priority culverts of approximately 150 in region.
	New Activities		N/A	Opportunities to invest in innovative or newly emerging programs & projects.
Sub-total:			**$1.81 million**	

Policy Questions

1. Are the proposed funding categories a helpful framework for soliciting local project nominations?

2. Are the historical allocation levels to these funding categories appropriate for the next allocation?

3. In anticipation of new federal Metropolitan Mobility, Active Transportation, and Freight Improvement grant programs or other new state funding, should the region direct funding for the development of projects and applications to leverage construction funding?

4. Should policies be developed to more precisely define how regional flexible funds should be utilized to advance freight mobility? If yes, do you want to provide specific direction to staff on developing options for your consideration?

METRO

Regional Program Summaries

JPACT Retreat Afternoon Session

April 2, 2010

Transit Oriented Development Program

Program Description

Metro's Transit Oriented Development (TOD) program works directly with developers and local jurisdictions to create vibrant downtowns, main streets and station areas by helping to change land use patterns near transit. The Program attracts private investment in construction of compact and mixed-use buildings that:

- Brings people to live and work within walking distance of high quality transit, Station Communities, and Regional and Town Centers;
- Creates new market comparables for more compact development ;
- Cultivates developers with expertise in compact and mixed-use building in suburban settings;
- Increases acceptance of urban style buildings through high quality design; and
- Contributes to placemaking and local identity.

Public-private development partnerships are necessary because planning and zoning alone are not enough to make TOD projects financially feasible in most areas outside of Portland's city center. To overcome market barriers, Metro offers financial incentives to offset the higher costs of compact development by purchasing transit-oriented development easements from developers and, in some cases, acquiring and selling land near transit at a reduced cost. Metro's role as a financial partner in TOD projects can leverage other public support; local and state agencies have helped to spur development by reducing entitlement risk, expediting permitting, authorizing tax abatements, making related public improvements, and providing project financing .

Since the Program's inception 12 years ago, the twenty (20) completed or currently under construction TOD projects have leveraged over $300 million in development to build 2,100 housing units (including 1,200 affordable units), 100,000 sq. ft. of retail and restaurant space, and 140,000 sq. ft. of office space. By increasing the intensity of land uses close to transit, people have been induced to use transit more, and drive less: more than half a million (543,000) trips are being taken by transit *every year* as a direct result of TOD projects built. This improves the cost-effectiveness of regional transit system investments. By building at higher densities these projects have also relieved pressure on the urban growth boundary, using only 80 acres where conventional development would have taken over 500 acres. Project investments and commitments have been made in twenty-four (24) station communities located in jurisdictions throughout the region: Beaverton; Clackamas County; Gresham; Hillsboro (Regional Center and Orenco Town Center); Milwaukie; Portland (Central City and Gateway Regional Center); Tigard; and Washington County.

Recent Policy Work

A TOD Program Strategic Plan is currently being prepared to guide the cost-effective allocation of limited TOD funding. Across the region, existing conditions and development economics are being evaluated in Station Communities, Centers and areas with high quality transit to develop a system-wide TOD station and corridor typology. This will clarify the types of investments that can most effectively help to realize each jurisdiction's local aspirations for these areas. Various stakeholder groups, including local planning and redevelopment staff, have been invited to contribute to this planning process. It is anticipated the TOD Strategic Plan will be completed in fall 2010.

Opportunities

The regional light rail transit system has doubled in size while the TOD Program funding levels have remained relatively constant. An additional $1 million would finance public-private partnerships to construct 3-5 compact, mixed use projects in Station Communities or Centers around the region.

Metro Planning

Program Description

MPO-Required Planning - Allocation of Regional Flexible Funds to Metro provides support for meeting MPO mandates, established through federal transportation authorization bills. Examples of these requirements include:

- Development and adoption of a long-range plan (RTP)
- Development and adoption of a short-range transportation improvement program (TIP)
- Development and maintenance of a long-range and TIP financial plan tracking projected revenues and maintaining fiscal constraint of the plan and TIP
- Support for a decision-making structure that includes local governments and state and regional transportation providers
- Maintenance of travel demand models for planning by Metro, local governments and state and regional transportation service providers
- Maintenance of land use, economic, demographic, GIS and aerial photo services for planning by Metro, local governments, and state and regional transportation providers
- Support of freight planning, including facilitation of a regional freight advisory committee, participation in state freight planning and development of a freight component to the RTP
- Compliance with federal certification requirements, including public participation, Environmental Justice, air quality, coordination with environmental resource agencies, grants and contracting requirements

This element of the allocation of Regional Flexible Funds came about in the mid-1980s when Metro abandoned the assessment of local government dues on cities and counties, TriMet and the Port of Portland. The amount allocated has been consistent over time with an inflation factor applied.

Proposed Allocation: This should be viewed as the Base allocation in the Planning category. The proposed allocation is $2.244 million for the 2-year period including a 3% per year escalator.

Next Corridor Program

Program Description

The Corridor Refinement Plan Work Program was adopted as an amendment to the Regional Transportation Plan in the fall of 2001 (Resolution 01-3089). MTIP funding for the Next Corridors program has been the vehicle through which Metro has partially funded refinement planning within these corridors. MTIP Funding has generally been at the level of $500,000 every two years. This sum has remained constant over the past ten years, although the cost and complexity of corridor plans has increased. For the past two cycles, this funding was directed to the High Capacity Transit System Plan to prioritize the next 30 years of high capacity investments.

The 2035 RTP introduced the concept of regional mobility corridors, expanding the region's focus on mobility from individual facilities to the network of facilities and the adjacent land uses they serve. The 24 mobility corridors provide a framework for consideration of multiple facilities, modes and land use when identifying needs and most effective mix of land use and transportation solutions to improve mobility within a specific corridor area. This emphasizes the integration of land use and transportation in determining regional system needs, functions, desired outcomes, performance measures, and investment strategies. At the same time, the mobility corridors are being used to satisfy state requirements for demonstrating the adequacy of the region's transportation system and its planned land uses.

Previous and Future Allocations

MTIP Next Corridor allocations are as follows:

Fiscal Year	Activity	Amount Spent/Underway/Requested
FY 02/03	I-5 Trade Corridor	$250,000 (spent)
FY 04/05	Powell/Foster	$300,000 (spent)
FY 06/07 & FY 08/09	High Capacity Transit System Plan	$500,000 (spent) + $500,000 (spent)
FY 10/11	Southwest and East Metro	$300,000 (underway)
		+ $200,000 from FY 06/07 (underway)
FY 12/13	Next Corridor and Advance Work*	$500,000 potential some allocation to Southwest Corridor (approved)
FY 14/15	Next Corridor and Advance Work*	$1,000,000 (requested)

*Next Corridor and Advance work would be allocated to refinement planning of the remaining Mobility Corridors identified in the 2035 RTP. (Advance work would be applied to up-front prioritization and partnering necessary to begin projects.) These are (priority to be determined):

- Mobility Corridor #24 - Beaverton to Forest Grove, which includes Tualatin Valley Highway
- Mobility Corridors #3 and #20 – Tigard Triangle to Wilsonville, which includes I-5 South, and to Sherwood (portions not included in Southwest Corridor Refinement Plan)
- Mobility Corridors #7, #8 & #9 -Clark County to I-5 via Gateway, Oregon City and Tualatin, which includes I-205
- Mobility Corridor #4 – Portland Central City Loop, which includes I-5/I-405 Loop

Next Corridor Program

Current Commitments

Metro Council approved Resolution # 10-4119 on February 25, 2010, which prioritized two corridors for refinement planning: Mobility Corridor #15 (East Metro connecting I-84 and US 26) and Mobility Corridors #2 and # 20 (the "Southwest" corridor in the vicinity of I-5/Barbur Blvd, from Portland Central City to approximately the "Tigard Triangle").

The estimated costs and time to complete these two refinement plans, both of which are still in the scoping phase, is approximately $3.3 million over the next three years. Available MTIP funding won't cover the entire amount of these plans, nor is it expected to. Other sources could include state Transportation Growth Management funds and local contributions. The Southwest corridor may require some amount of the FY12/13 MTIP funds for completion.

Future Commitments/Request

Based on the scoping of current commitments, and the region's need to complete the remaining future refinement plans in the prioritized mobility corridors, it is requested that the current FY 14/15 MTIP contribution toward Next Corridor Refinement Planning be approved at $1 million.

Next Corridors Opportunities:

- Support an expanded Next Corridor MTIP strategy to implement the mobility corridor strategy refinement planning; and
- Respond to related local jurisdiction needs for technical assistance on local transportation and land use plans; and
- Keep pace with increased cost, complexity and schedule of multimodal corridor refinement planning as the mobility corridor strategy evolves and is implemented.

Transportation System Management and Operations Program (TSMO)

Program description

The **TSMO** program coordinates both the planning and implementation of the region's system management and operations strategies to enhance multimodal mobility for people and goods. The activities of this program focus on proactive management of the multimodal transportation system through:

- Multimodal traffic management strategies to reduce travel times and vehicle emissions;
- Traveler information to help system users make informed decisions and avoid congestion; and
- Traffic incident management to reduce crashes and delay, and improve traveler safety

The program also supports the implementation of the region's Congestion Management Process (CMP) by implementing lower cost, high benefit operational improvements for congestion and safety; and by enhancing the region's real-time data collection capabilities in support of performance monitoring. The TSMO program activities are guided by TransPort, the regional advisory committee on system operations.

The benefits of TSMO investment include:

- Improve travel time reliability
- Reduce crashes
- Improve transit on-time arrival
- Reduce travel delay
- Reduce fuel use
- Reduce air pollution and carbon emission

Recent policy work

The region completed a Regional Transportation System Management and Operations Plan in December 2009. The plan is a road map to guide transportation management solutions for the next 10 years. The plan will become part of the final 2035 Regional Transportation Plan scheduled for approval in June 2010.

The plan has four focus areas for investment – multimodal traffic management, traffic incident management, traveler information, and transportation demand management. It identifies both program and infrastructure investments under each focus area. The RTO program advances the transportation demand management investments.

Opportunities

With the completion of the Regional TSMO plan, TransPort is now focused on implementation. The Regional Mobility program is supported with a total regional flexible fund allocation of $6 million for FY2010 – 2013. These funds will support both region-wide initiatives such as the PORTAL data archive enhancement and concept development and targeted corridor investments such as advance traffic signal systems. Looking ahead to 2014-15, there is an abundance of opportunities to advance management solutions that benefit the traveling public in the Portland region. Continued investment in creating a 21st century traffic management system means upgrading existing equipment that serves all modes, maintaining current signal timing, and maximizing the system's data collection capabilities. Enhancing traveler information means harnessing the region's data collection efforts to provide real-time travel information. Traffic incident management investments in surveillance for faster incident detection, active traffic management tools, and inter-agency communications can reduce incident-related congestion and restore system capacity.

Objectives

- Enhance coordination of RTP and Regional Mobility strategies and investments. (ONGOING)
- Seek new opportunities for funding regional TSMO strategies. (ONGOING)

Transportation System Management and Operations Program (TSMO)

- Coordinate with Making the Greatest Place and Transportation Implementation activities to ensure consideration and integration of TSMO strategies. (ONGOING)
- Implement TSMO strategies that support the regional CMP. (ONGOING)

High Capacity Transit Program

High Capacity Transit (HCT) Program Description

This region's celebrated quality of life is in no small part a result of careful transportation and land use planning. Transit is an integral part of the region's culture and identity. For 30 years the region has made light rail transit, now supplemented with commuter rail, the basis for the regional high capacity transit (HCT) system. Each addition has had exponential benefits and the system must be completed if it is to respond to the region's continued growth.

For the past year, Metro has been developing a 30-year plan to guide investments in light rail, commuter rail, bus rapid transit and rapid streetcar in the Portland metro region to be included in the Regional Transportation Plan. The Regional High Capacity Transit System Plan ranks 16 potential high capacity transit corridors in four regional priority tiers and creates a framework for future system expansion. With the completion of this plan the region now has a clear, consensus-based plan on which projects should advance for the next 30 years. The HCT Program MTIP funding will provide supplemental resources necessary to implement the Regional Transportation Plan and the Regional High Capacity Transit Plan in order to complete the region's list of 16 high capacity transit projects.

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Current Commitments

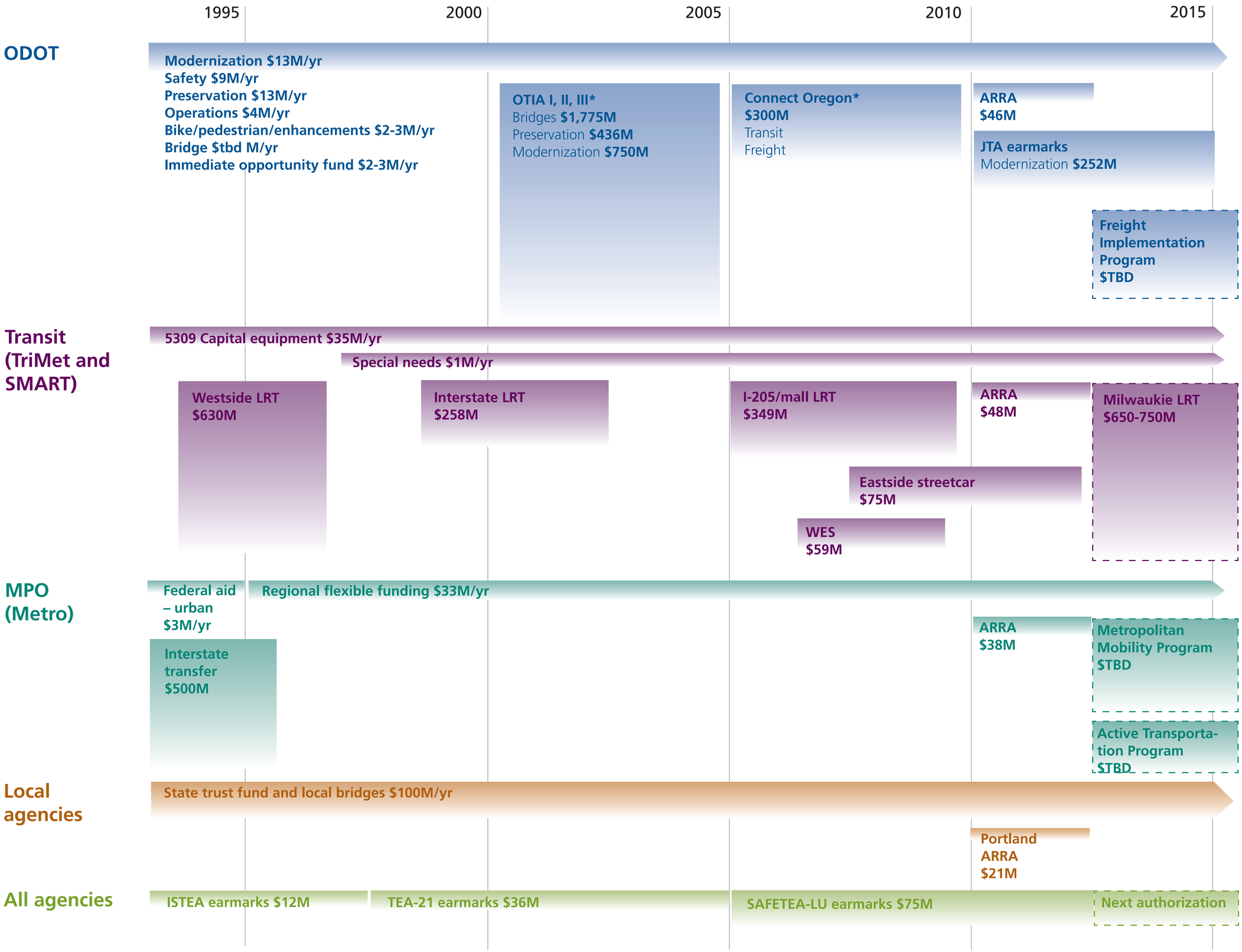
Current commitments include RFFA funds for the capital HCT projects of Milwaukie LRT and the WES Commuter Rail. HCT Project Development supports the AA work necessary for the Lake Oswego to Portland Streetcar and the Portland-Milwaukie LRT Projects.

Future Commitments/Request

Metro Council approved Resolution # 10-4118 on February 25, 2010, and JPACT on January 14, 2010, which prioritized the Southwest high capacity transit corridor as the region's next priority for advancement (the "Southwest" corridor in the vicinity of I-5/Barbur Blvd, from Portland Central City to Sherwood).

A request of $4 million for FY14/15 is requested to ensure progress is made on the region's current HCT priority – the Southwest HCT corridor. Federal appropriations for the region's HCT priorities may not be in sync with our region's desire to move projects forward at the region's desired pace. Likewise, federal funding may allow other corridors to advance if full federal funding becomes available for the Southwest Corridor.

Federal and state capital investments in the Portland metropolitan area



*OTIA and Connect Oregon are statewide, not regional numbers

Anticipated revenue

600 NE Grand Ave.
Portland, OR 97232-2736
503-797-1700
503-797-1804 TDD
503-797-1797 fax

www.oregonmetro.gov

Metro | *Memo*

Date: March 1, 2010

To: JPACT, MPAC and interested parties

From: Mike Hoglund, Research Director
Kim Ellis, Principal Transportation Planner

Re: House Bills 2001 and 2186 Greenhouse Gas Scenario Mandates

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BACKGROUND

This memo provides an overview of the state, federal and regional context guiding future scenario planning work in the Portland region. A detailed work program is being developed for input in the coming months.

State and Federal context

In 2007, the Legislature established statewide targets for greenhouse gas emissions (GHGs) – calling for stopping increases in emissions by 2010; 10 percent reduction below 1990 levels by 2020 and a 75 percent reduction below 1990 levels by 2050. The targets apply to all emission sectors, including energy production, buildings, solid waste and transportation.

In 2009, the Legislature passed House Bill 2001, directing Metro to "develop two or more alternative land use and transportation scenarios" by January 2012 that are designed to reduce greenhouse gas emissions from light-duty vehicles. Sections 37 and 38 of House Bill 2001 are intended to ensure statewide targets for GHG emissions are being addressed in metropolitan transportation plans and regional and local land use plans. House Bill 2001 also calls for LCDC rulemaking in 2011 to establish a specific Metro-area target for the transportation-related emissions sector. The region's LCDC established target will take into account all sectors of CO2 emissions for all parts of the state. A report on the Metro-region scenarios is due to the Oregon Legislature by February, 2012. House Bill 2001 also requires Metro to adopt one scenario that meets the state targets after public review and comment. Finally, it requires local governments to adopt comprehensive plan and land use regulations consistent with the adopted scenario.[1]

The 2009 Legislature also established the Metropolitan Planning Organization Greenhouse Gas Emissions Task Force through House Bill 2186. The task force's recommendations were approved by 2010 Legislature as part of Senate Bill 1059. Senate Bill 1059 provides further direction to greenhouse gas scenario planning in the other Oregon MPOs and the Metro region.[2] It also calls for a statewide GHG emission reduction strategy for the light-duty vehicle emissions sector; and calls for the state to develop a toolkit of emission reductions actions.

Federal climate legislation, with targets and commensurate planning requirements to mitigate GHG emissions remain pending in Congress.

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[1] For more information on House Bill 2001, go to http://www.oregon.gov/ODOT/JTA_overview.shtml.

[2] For more information on House Bill 2186 and the Task Force recommendations, go to http://www.oregon.gov/ODOT/TD/TP/HB2186.shtml.

Regional context

In 2008, the region examined a number of scenarios during the Making the Greatest Place process intended to best meet six regional outcomes, including minimizing contributions to global warming. Those scenarios provide a baseline for further work but did not demonstrate the necessary emission reductions to meet the long-term state and regional targets.

In 2009, the region approved an updated RTP that establishes appropriate and timely policy direction by putting GHG reduction directly into the plan rather than waiting for a federal mandate, and it allows the region to begin work to address requirements set out in House Bill 2001 by the 2009 Legislature.

There is no silver bullet, but the region can build on past successes. In general, the Portland region is leading the United States in reducing transportation-related GHGs. Vehicle miles traveled (VMT) per capita have been declining, transit and bike mode shares are increasing, and shorter trips have resulted due to compact, mixed-use urban form. National studies, research in California and the Puget Sound region and other scenario planning efforts have shown that compact urban form coupled with expanded travel choices, system operations and trip reduction programs, user fees, and technology (e.g., more efficient vehicles and lower-carbon fuels) will reduce transportation-related carbon emissions. These strategies are recommended by the 2035 Regional Transportation Plan (RTP), and will be further tested through the scenarios.

In order to meet state goals and the region's broader set of desired outcomes, Metro's greenhouse gas scenario planning work will be guided by the following principles:

- **Regional collaboration and partnerships.** Addressing the climate change challenge will take a regional approach and partnerships in the public and private sectors, requiring meaningful policy and investment discussions with elected leaders, stakeholders and the public. It is only by working together and combining resources that we can hope to make real progress and be successful.
- **Healthy environment and healthy economy.** Environmental health and economic vitality are not mutually exclusive -- with strategic planning, innovation and investment, the region can achieve both desired outcomes.
- **Continued leadership on the integration of land use and transportation.** National studies continue to show that a compact urban form coupled with expanded travel choices as key to reducing greenhouse gas emissions. Land-use and transportation policy-makers must work together to provide leadership and commit to strategies that will enhance this integration at the local, regional and state levels.
- **Build on past successes and innovation.** The scenarios analysis will build on the innovative policy and technical work from the *Making the Greatest Place* initiative, the Regional Transportation Plan update and local efforts to implement the 2040 Growth Concept. Scenarios will be based on agreed-upon assumptions for land use and development patterns, transportation, user fees and technological advancements related to vehicle fleets and fuels.
- **Better tools for complex decisions.** Appropriate baseline data and enhanced analysis tools will be developed to better understand which strategies are most effective and the benefits and impacts of different strategies on reducing carbon emissions and achieving other desired outcomes.

A general timeline and work program that identify major deliverables and decision points for this effort are provided for reference. A more detailed work program is being developed for further input in the coming months.

OVERVIEW OF DRAFT METRO REGION GAS SCENARIO PLANNING WORK PROGRAM

Phase I – Scoping January – June 2010
Develop an overall scope of work and budget, refined timeline, project management and oversight processes, outreach and communication structures, governance structure, and inter-governmental agreements to complete the work.

Phase II – Research January – December 2010
Develop and enhance transportation, land use, and GHG forecasting models. Finalize baseline GHG inventory. Publish climate change background report(s). Establish policy basis for new tools, such as parking pricing, tolling and other strategies. Initiate public/stakeholder outreach.

Phase III – Scenario Development May – December 2010
Work with stakeholders to develop evaluation criteria and two scenarios intended to meet transportation-sector GHG targets. Continue public/stakeholder outreach.

Phase IV – Scenario Evaluation January – September 2011
Work with DLCD staff and other stakeholders to develop a recommended transportation-related GHG emissions reduction target. LCDC will adopt target in June 2011. Evaluate a baseline and two scenarios against criteria and refine scenarios, if necessary, to meet LCDC-adopted GHG targets.

Phase V - Public Review Process October – December 2011
Report on scenarios as defined in public/stakeholder outreach plan. Public review process results in a public comment report and accompanying transmittal to forward to the Oregon Legislature.

Phase VI – Scenario Selection January – September 2012
Provide a report to the 2012 Legislature on scenarios results and policy implications. Consider public comments and select preferred scenario to forward to next RTP. Initiate next RTP update in June 2012.

Phase VII – Regional and Local Implementation September 2012 - 2014
Incorporate preferred scenario into Regional Transportation Plan as part of RTP update. Identify local and regional actions needed to implement preferred scenario. Begin local plan updates and regional implementation.

Transportation and Land Use Scenario Planning
Greenhouse Gas Reduction
House Bill 2001

Key

- Document/ Deliverable
- Decision Point
- Event
- Process

Activity	Sept '09 – July '14	Project Lead and Participants
State Regulatory Milestones	HB 2186 Task Force identifies GHG scenarios process (1/1/10); State defines modeling tools and assumptions (3/1/11); LCDC adopts GHG 2035 targets for Metro (6/1/11); DLCD/ODOT progress report to interim transp. committee on scenarios (2/12); LCDC adopts rules to guide development & implementation of scenarios (1/13)	DLCD, ODOT, DOE, DEQ, Metro
Metro Transportation & Land Use Scenarios	Background research and project scoping; JPACT/MPAC Climate Change Retreat (4/2/10); Scenarios framing with advisory groups and council; Scenario development with transportation and land use subcommittee; Report scenario findings to advisory committees, council and state (1/1/12); Plan and policy update process; Metro Council and local partners adopt scenario for local implementation (6/1/14)	Research Center, Planning & Development
Technical Tools Development	Trans/LU GHG impact analysis procedures & GHG inventory; Backcasting methodology; ODOT estimate of VMT in 1990 and associated GHG's; Tool development and peer review; Technical analysis of scenarios; Assist Eugene/ Springfield in model development (7/1/13)	Research Center
Public Outreach & Communications	Education and Engagement Strategy; Kick-off event; Targeted outreach; Scenario findings hearings, open house, etc.; Plan and policy outreach; Hearings, open houses, etc.	Planning & Development, Communications

Project Objective: House Bill 2001 Sec. 37 requires metropolitan service districts to develop land use and transportation scenarios designed to reduce greenhouse gas emissions from certain vehicles.

Materials following this page were distributed at the meeting.

600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Agenda*

Meeting:	Joint JPACT and MPAC workshop *Climate and Community Prosperity:* *Addressing climate change through developing great communities*
Date:	Friday, April 2, 2010
Time:	8 a.m. to 12:30 p.m.
Place:	Oregon Convention Center, Rooms F150-151
Purpose:	Develop a common understanding of the science of climate change and the impacts of land use and transportation strategies on greenhouse gas (GHG) emissions; identify shared goals, expectations and policy options; commit to the development of a strategy to achieve a healthy climate and great communities.
Outcomes:	Shared commitment to regional climate change action and prioritized policy considerations for greenhouse gas reduction scenarios work

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8 a.m. **Welcome – Metro Chief Operating Officer Michael Jordan**
- *Workshop objectives*

8:05 a.m. **Regional and Local Context – Metro Councilor Carlotta Collette (JPACT chair) and Clackamas County Commissioner Charlotte Lehan (MPAC vice chair)**
- *Background, brief review of regional GHG inventory (previously presented to JPACT and MPAC) and GHG scenarios project*
- *Local perspective and examples*

8:15 a.m. **State Context – Oregon Transportation Commission Chair Gail Achterman**
- *Carrying out the Governor's direction on climate change.*
- *How ODOT will partner with the region to carry out this work, and meet the mandate set forth in HB 2001.*

8:25 a.m. **Making the Case for Climate Action – The Science and Implications – Dr. William Moomaw**
- *What causes climate change and how do we know it's changing?*
- *Where are we headed (nationally? internationally?)*

9:30 a.m. **Q & A and group discussion – Michael Jordan, facilitator**
- *Questions for Dr. Moomaw*
- *Discussion*

10 a.m. **BREAK**

10:15 a.m. **Bending the Curve: Getting there from here – Dr. William Moomaw**
- *What can you do about climate change?*
- *How can the region effectively address the state targets for GHG emissions through land use and transportation scenarios work?*

10:45 a.m. **Q & A – Michael Jordan**

Continued on back

11 a.m. **How will we bend the curve? – Small Group Activity**

- *Exercise for participants to brainstorm issues and opportunities to reduce GHG emissions and create livable communities.*
    - *What are the most promising opportunities in your communities?*
    - *What are the issues that arise in making those opportunities happen?*
    - *What are the fears that this process elicits for them as local decision-makers?*

11:40 a.m. **Ranking exercise (worksheets on the tables)**

11:50 a.m. **Observations and final comments – Dr. William Moomaw**

Noon **Next Steps/Adjourn – Michael Jordan**

Noon – 1 p.m. **Lunch** (provided for MPAC, JPACT members, speakers and invited guests)

JPACT members reconvene *to discuss Metropolitan Transportation Improvement program policy direction. MPAC members invited to participate but not required.*

Draft agenda*:*

1 p.m. **Welcome back and opening comments**

1:10 p.m. **Presentation by Ted Leybold, MTIP Manager**

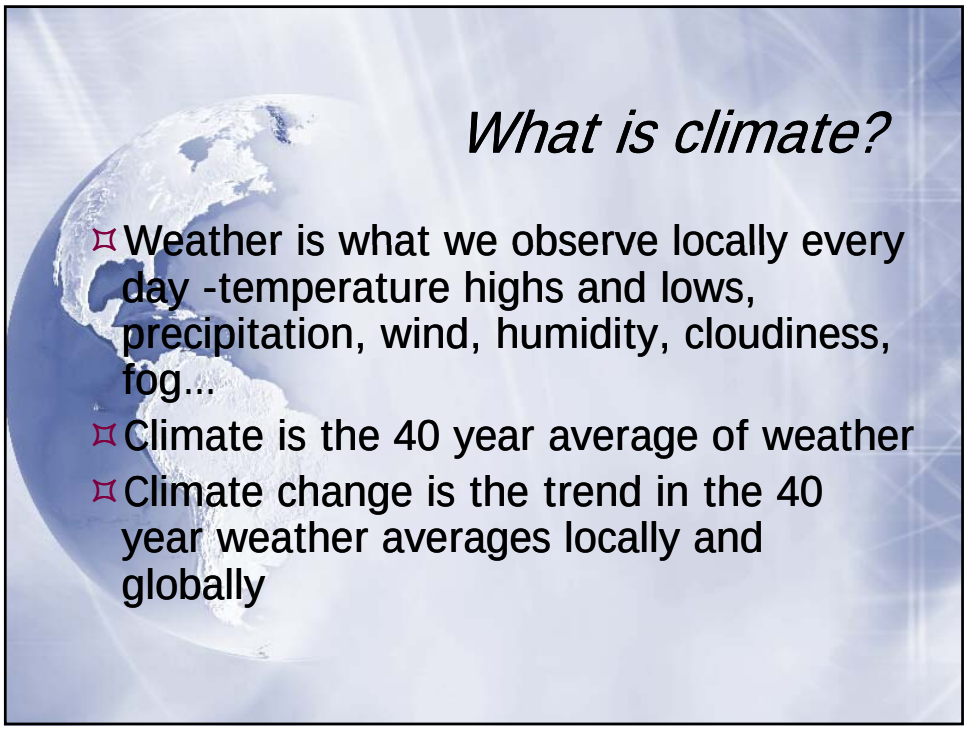
1:30 p.m. **Discussion of policy questions**

2:30 p.m. **Wrap up**

3 p.m. **Thank you and adjourn**

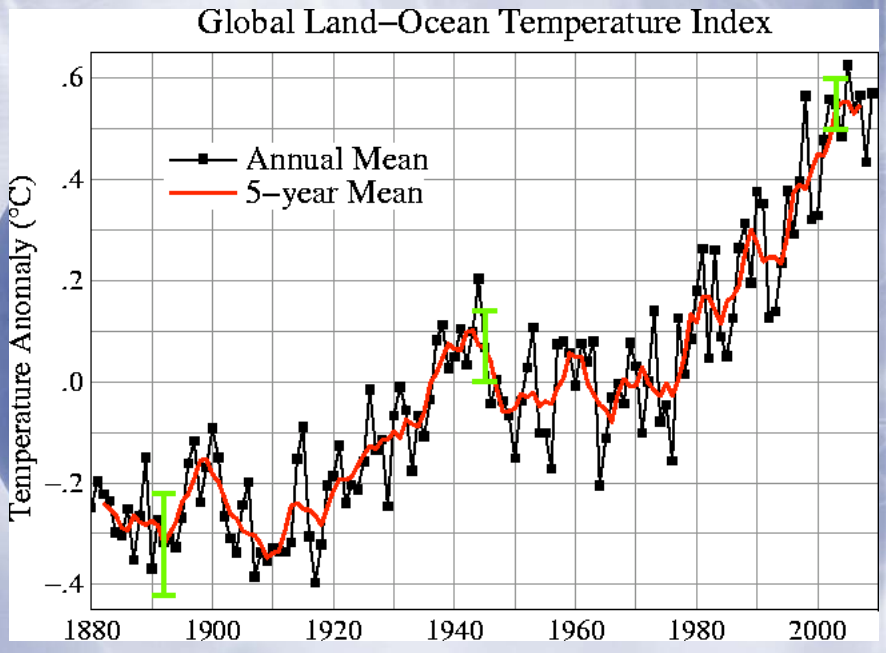
William Moomaw *is a professor and founding director of the Center for International Environment and Resource Policy at Tufts University and a lead member of the Nobel Prize-winning Intergovernmental Panel on Climate Change (IPCC), a UN-sponsored group of scientists. He has worked on mitigation and adaptation aspects of climate change for more than 20 years. He was the first director of the Climate, Energy and Pollution program at the World Resources Institute. He has been a lead author on five IPCC reports, recognized with the 2007 Nobel Peace Prize, and has written extensively on greenhouse gas emission reductions, renewable energy and other strategies for addressing climate change.*


Climate Change: What it means for planning
Bill Moomaw


What is climate?
Weather is what we observe locally every day -temperature highs and lows, precipitation, wind, humidity, cloudiness, fog…
Climate is the 40 year average of weather
Climate change is the trend in the 40 year weather averages locally and globally

How do we know climate is changing?

- Literally thousands of weather observations are made daily, and sent to central locations
- Research is carried out to determine the temperatures and weather from remote locations in the arctic, in the Amazon and on the ocean surface
- Satellites monitor solar intensity and temperature globally, and send back data on melting glaciers, the polar ice cap, sea level and other indicators of climate and climate change



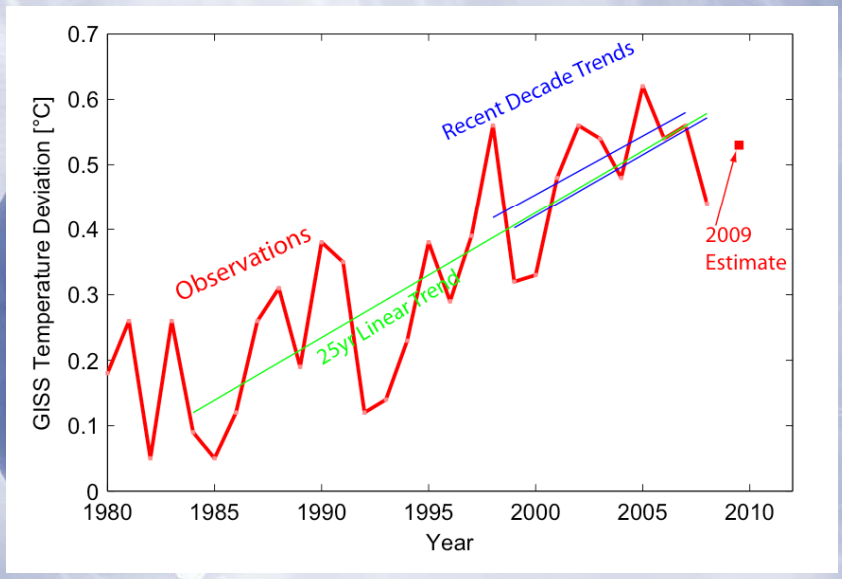


Figure 4: Global Temperature Change since 1980 from GISS data

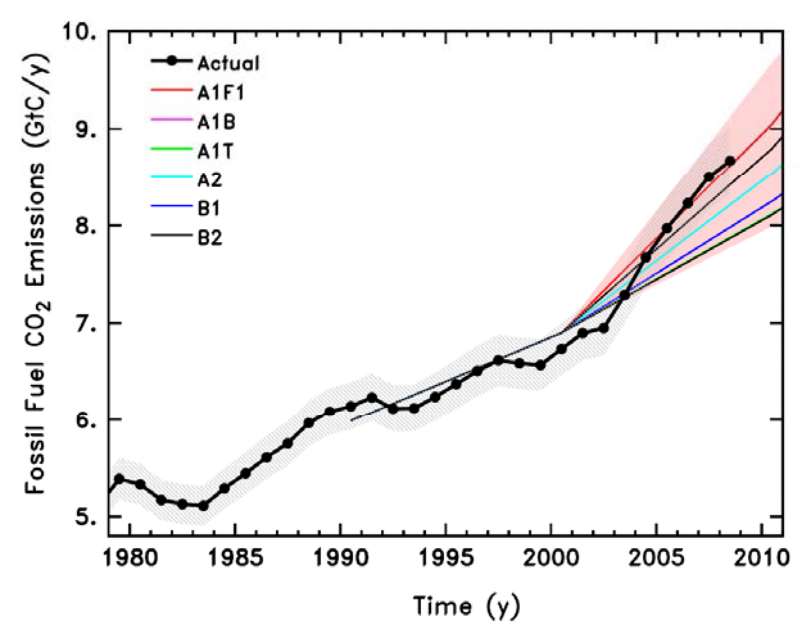
Intergovernmental Panel on Climate Change 2007

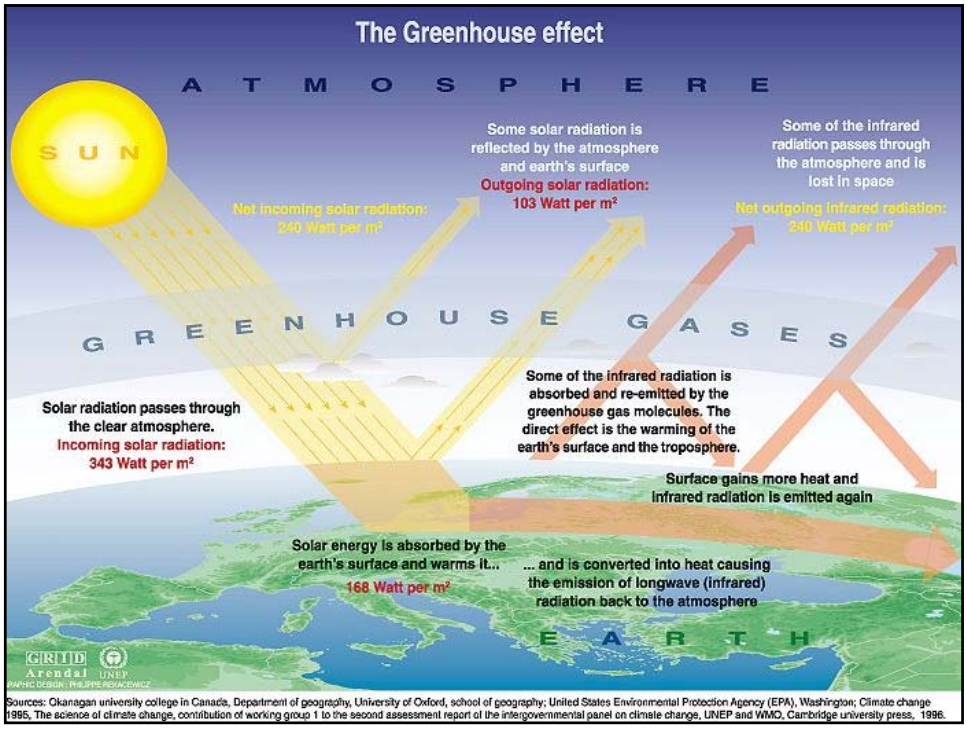
- Eleven of the twelve warmest years since 1850 have occurred in the past twelve years (1995-2006).
- Global average temperature rise from 1850-1899 to 2001-2006 is 1.4 deg F (0.76 deg C plus or minus 0.2 deg C)
- Temperatures in Alaska are up 4-5 deg F
- Rate of warming in past 50 years is double the average for the last 100.
- Rate of sea level rise has doubled since 1993

IPCC 2007 conclusion

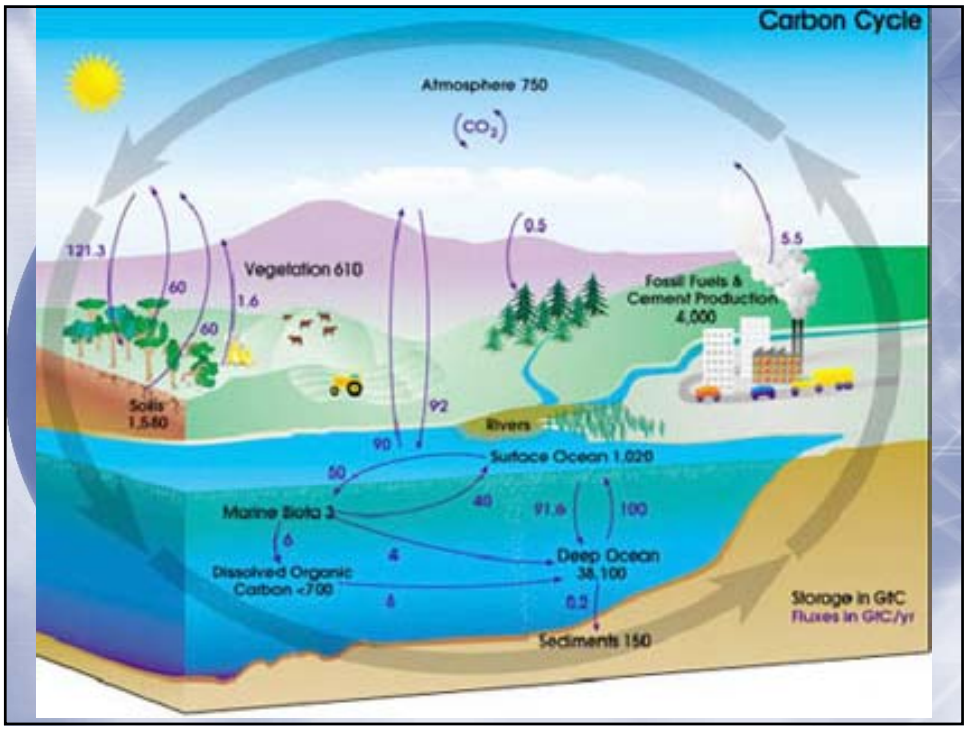
- "Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Global CO_2 Emissions from Fossil Fuels

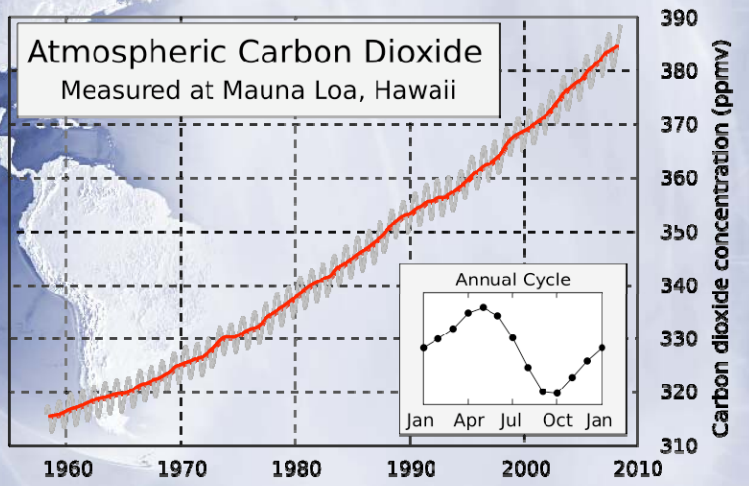




Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

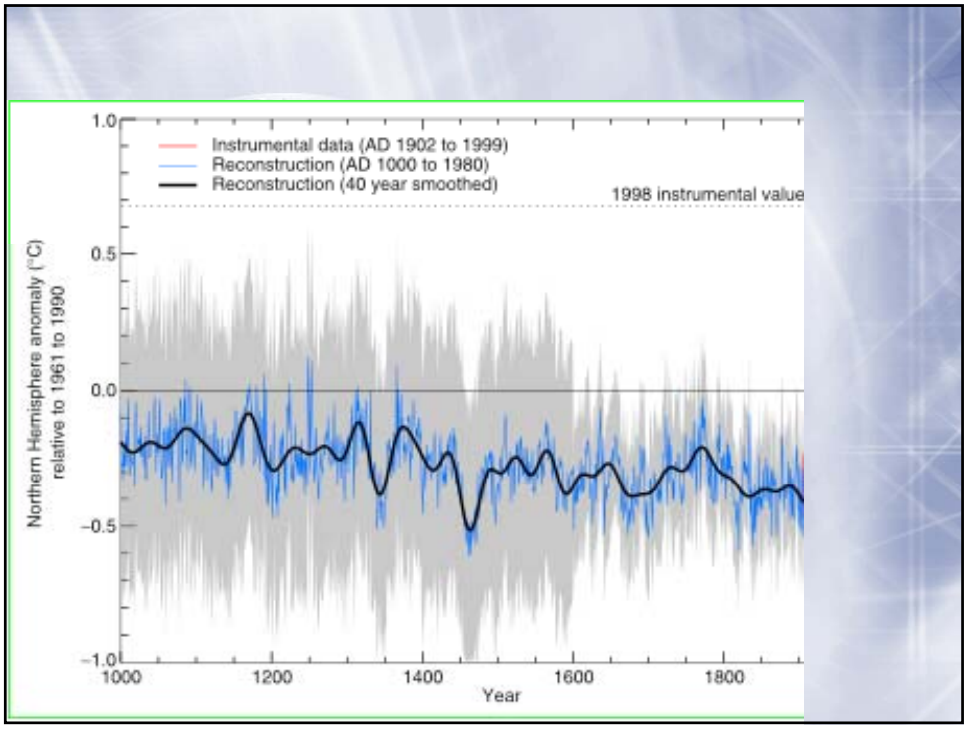


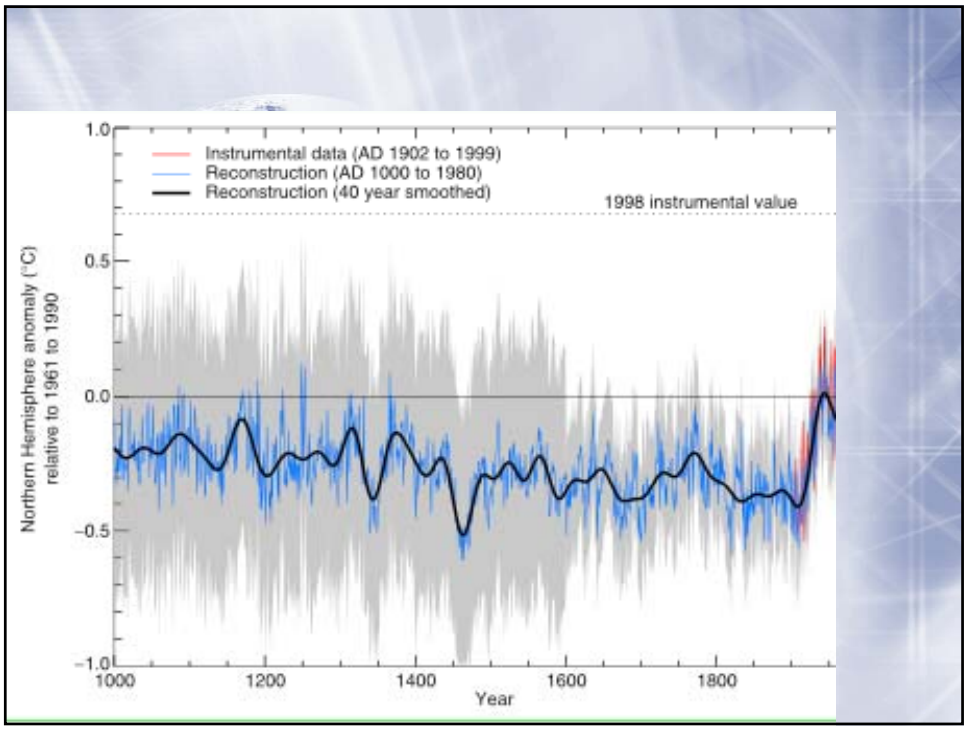
Carbon dioxide concentrations continue to increase



Hasn't climate always changed?

- The current era has had relatively stable temperatures for the past 10,000 years
- The current changes in climate and heat trapping gases are however unprecedented
- The one constant of climate is that it has changed over time


Instrumental data (AD 1902 to 1999)
Reconstruction (AD 1000 to 1980)
Reconstruction (40 year smoothed)
1998 instrumental value
Northern Hemisphere anomaly (°C)
relative to 1961 to 1990
1.0
0.5
0.0
−0.5
−1.0
1000
1200
1400
1600
1800
Year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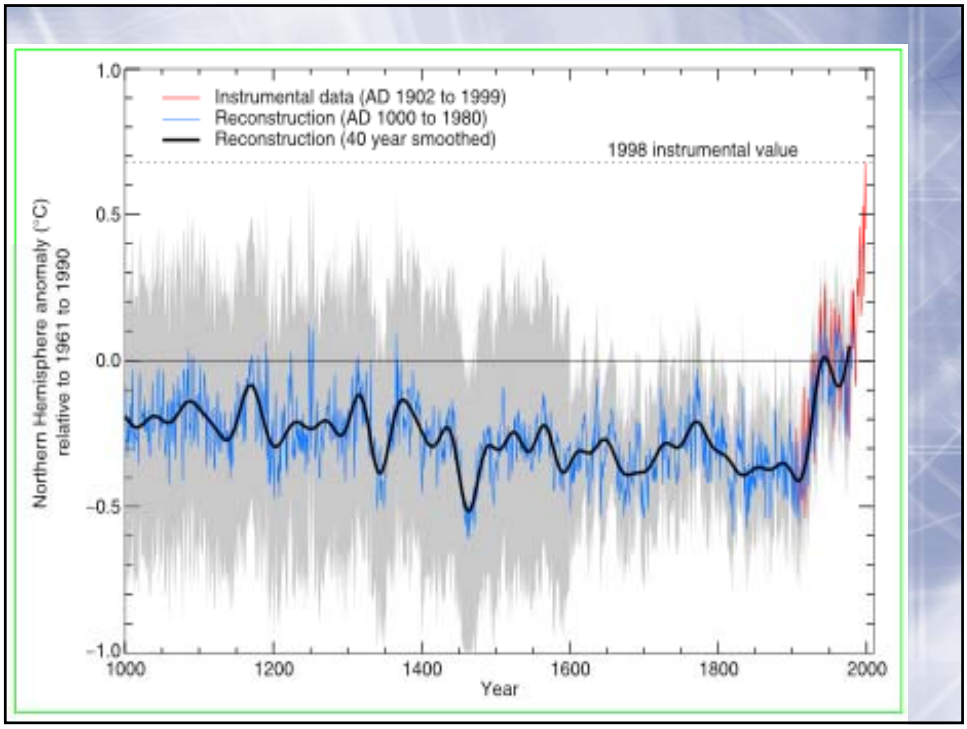
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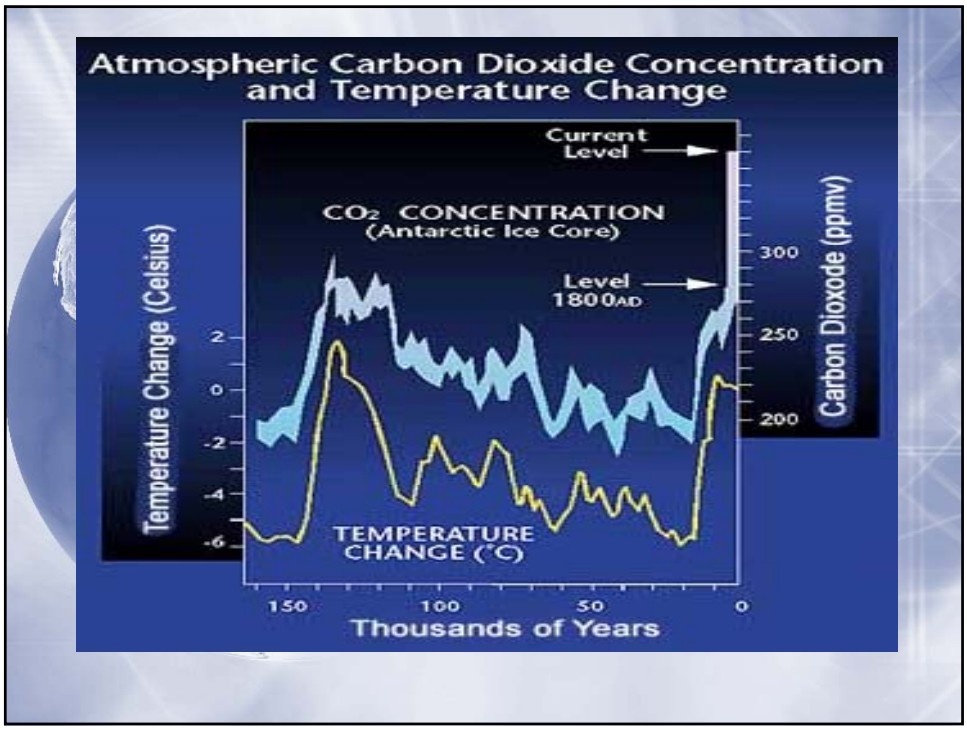
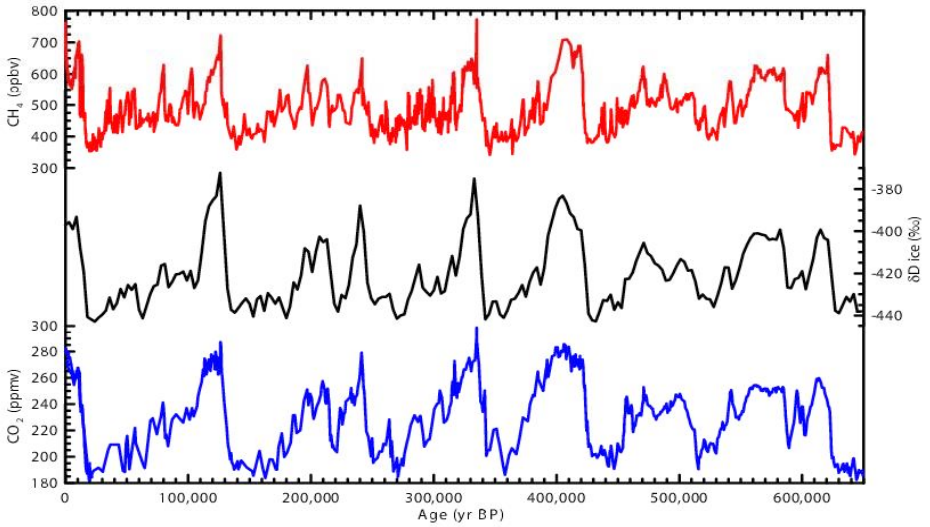
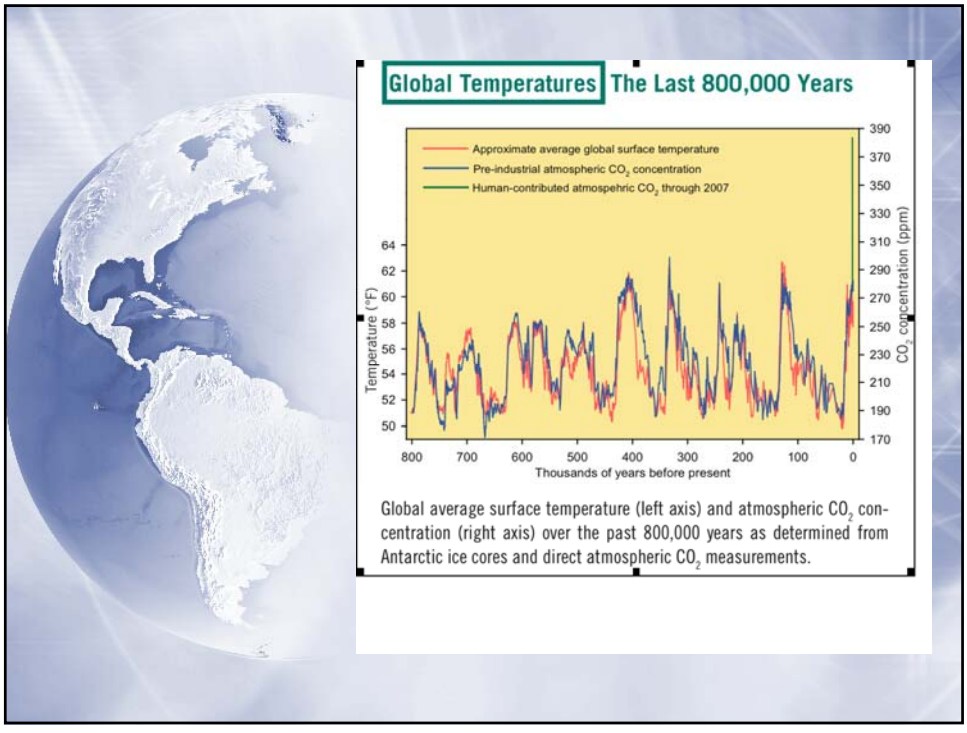

Atmospheric Carbon Dioxide Concentration and Temperature Change
Current Level
CO2 CONCENTRATION
(Antarctic Ice Core)
Level 1800AD
Temperature Change (Celsius)
2
0
-2
-4
-6
TEMPERATURE CHANGE (°C)
300
250
200
Carbon Dioxode (ppmv)
150
100
50
0
Thousands of Years

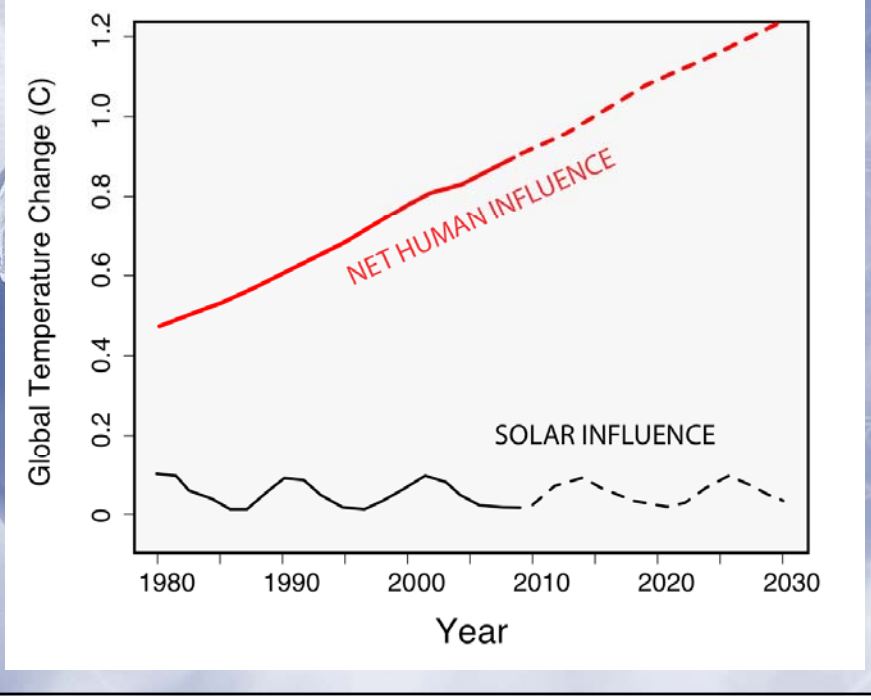
Carbon dioxide, methane and temperature 650,000 years





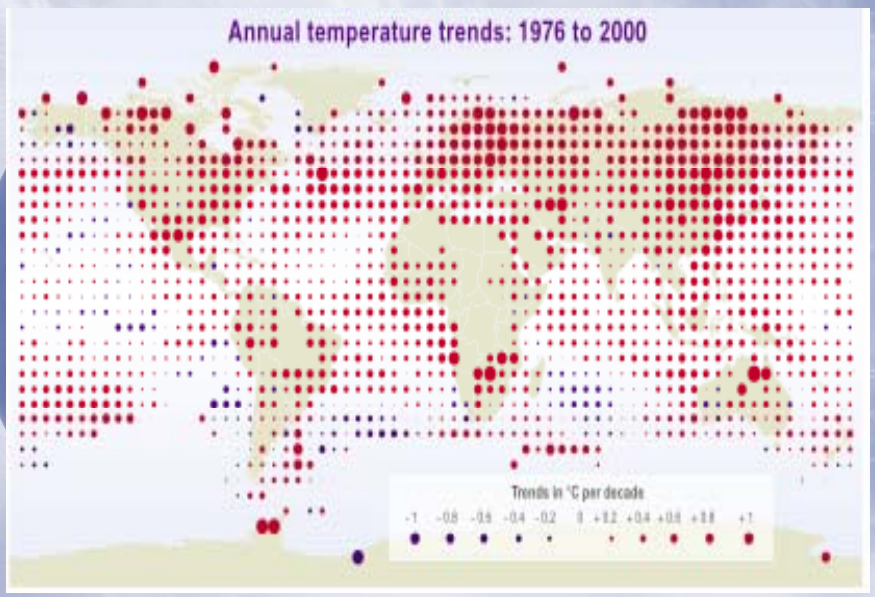
The Connection Between Long-Term Cycles and Heat Trapping Gases

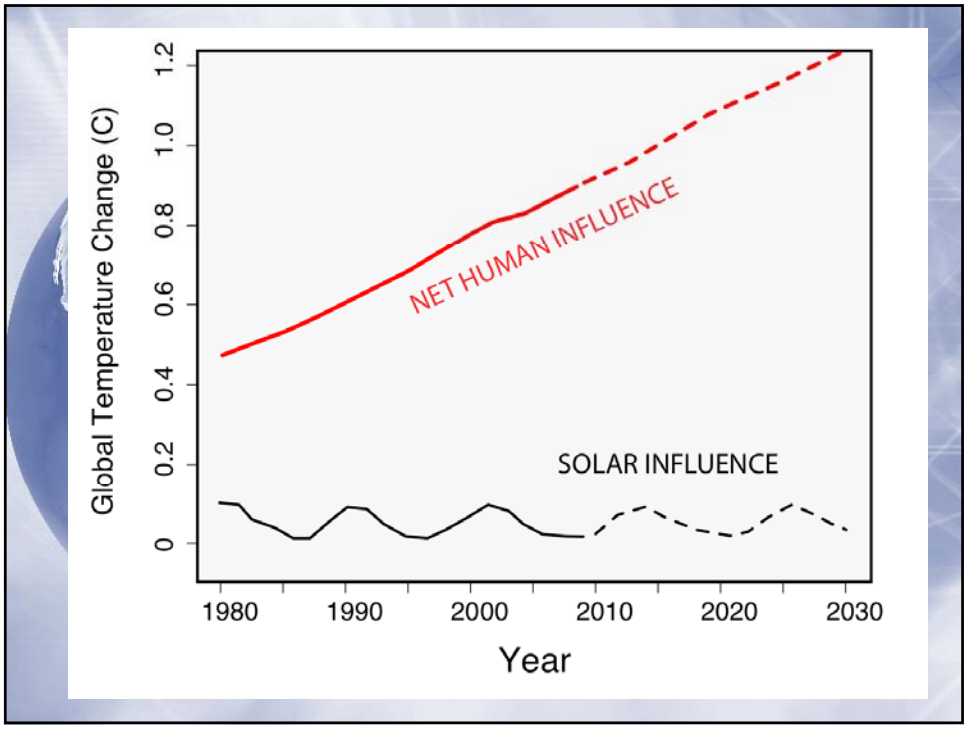
- Planetary mechanics positions the earth for an interglacial warming period about every 120,000 years
- As the earth warms slightly because of its orientation to the sun, carbon dioxide, methane and other heat trapping gases are released from oceans and forests and trap more heat



What are the consequences of current and future rapid climate change?

- We are rapidly adding heat trapping gases at the peak of the interglacial warming period
- The result is a rapid rise in temperature and other climate measures





Impacts

- Rising temperatures
- Altered precipitation
- Intensification of storms
- Melting of glaciers
- Melting of polar sea ice and permafrost
- Fire and drought
- Sea level rise
- Species loss
- Insect and disease migration

Insurance industry

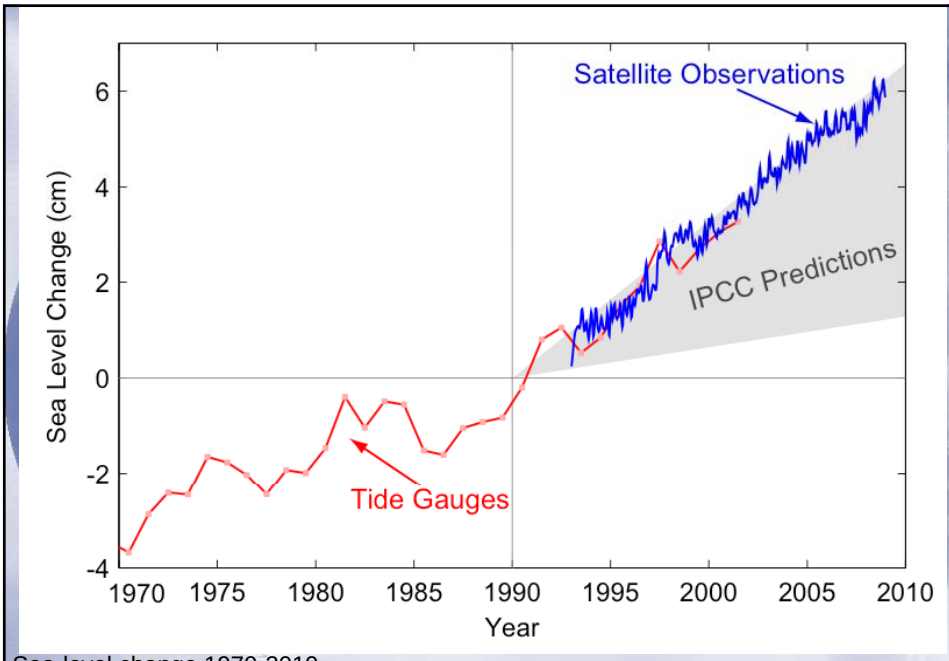
- Increasingly destructive weather -- including heat waves, hurricanes, typhoons, tornadoes, floods, wildfires, hailstorms and drought -- accounted for 88 percent of all property losses paid by insurers from 1980 through 2005. Seven of the 10 most expensive catastrophes for the U.S. property and casualty industry happened between 2001 and 2005.

Upsala Glacier Patigonia Argentina

Pasterze Glacier Austria 1875-2004

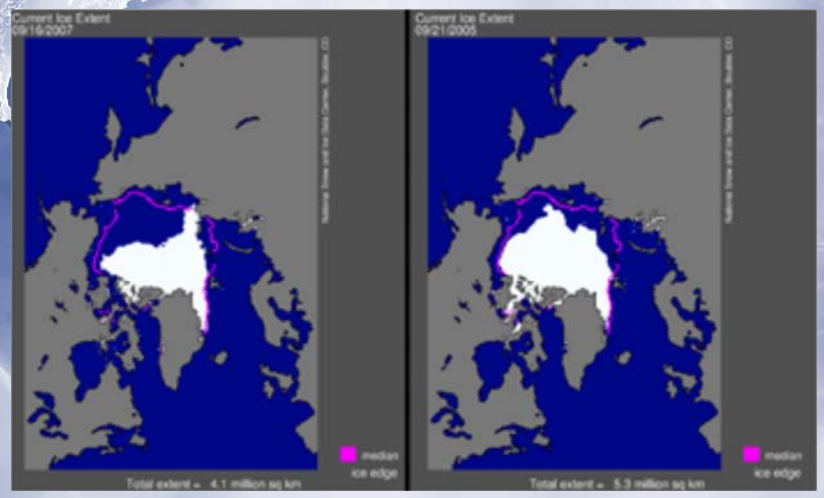
Alaska 1950-2002

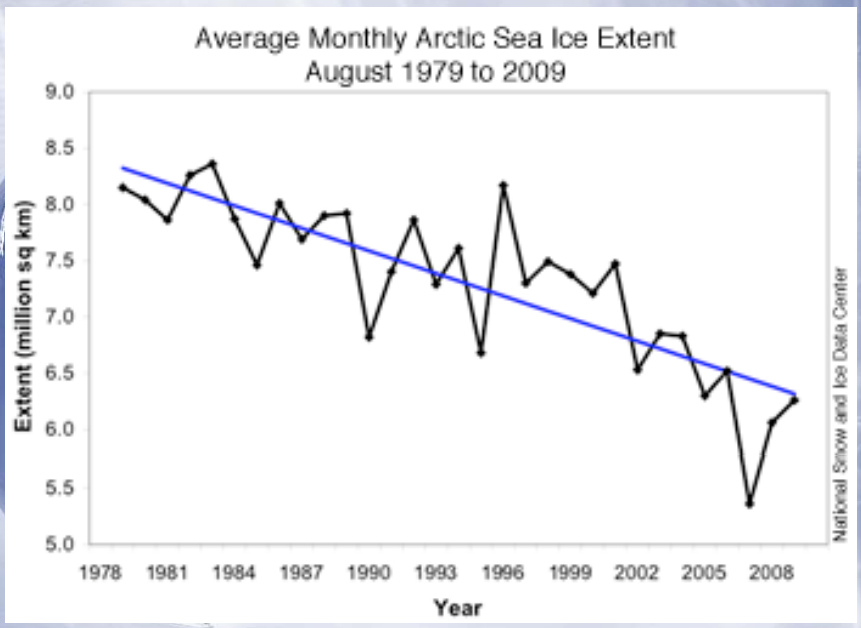
This glacial melting along with warming sea temperatures is raising sea level, which threatens coastal cities



Sea-level change 1970-2010

Sea Ice 9/16/07 & 9/21/05





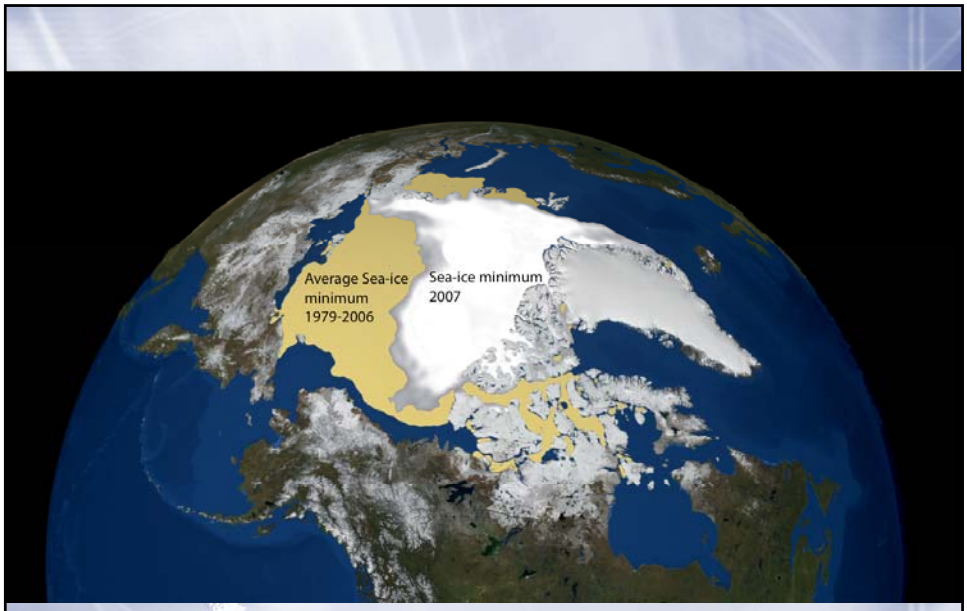
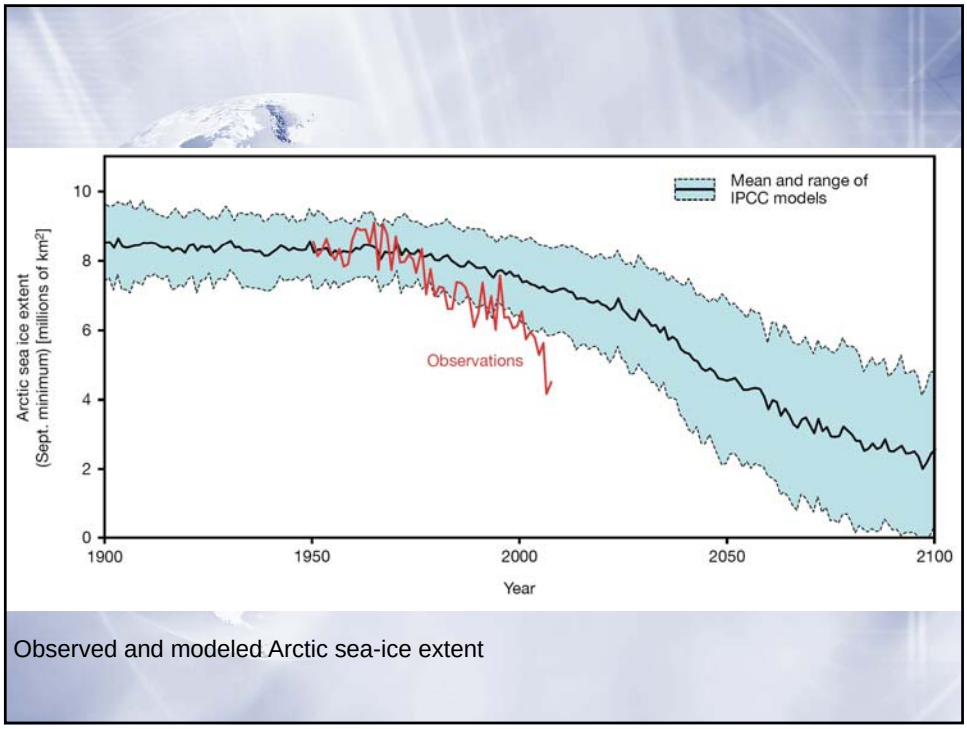
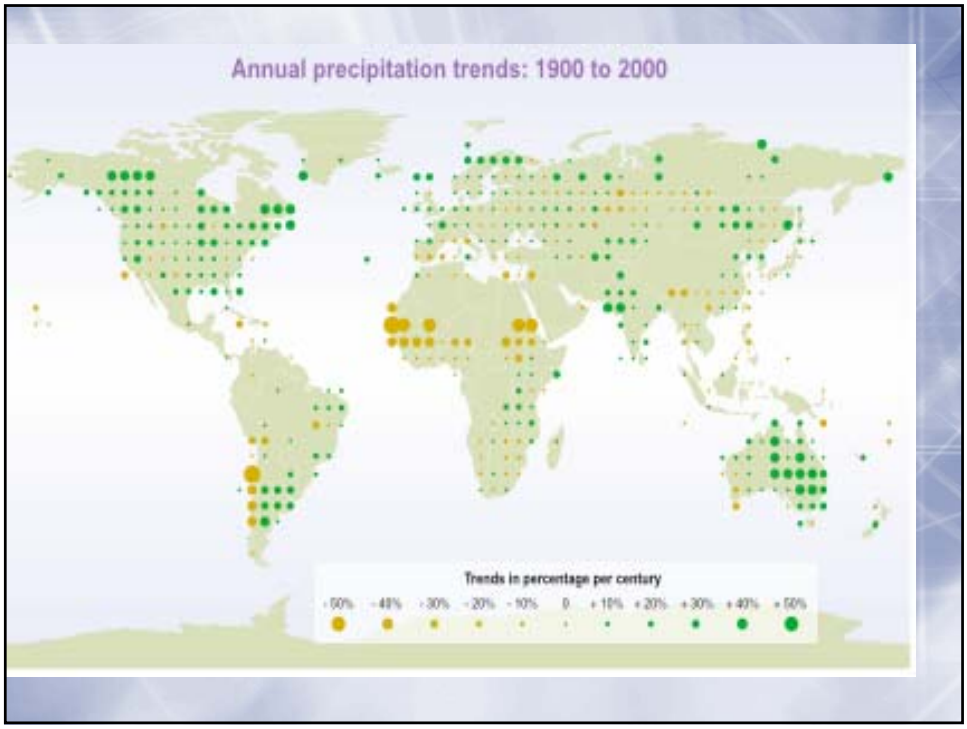


Figure 12: Minimum arctic sea-ice extent from 1979 to 2007

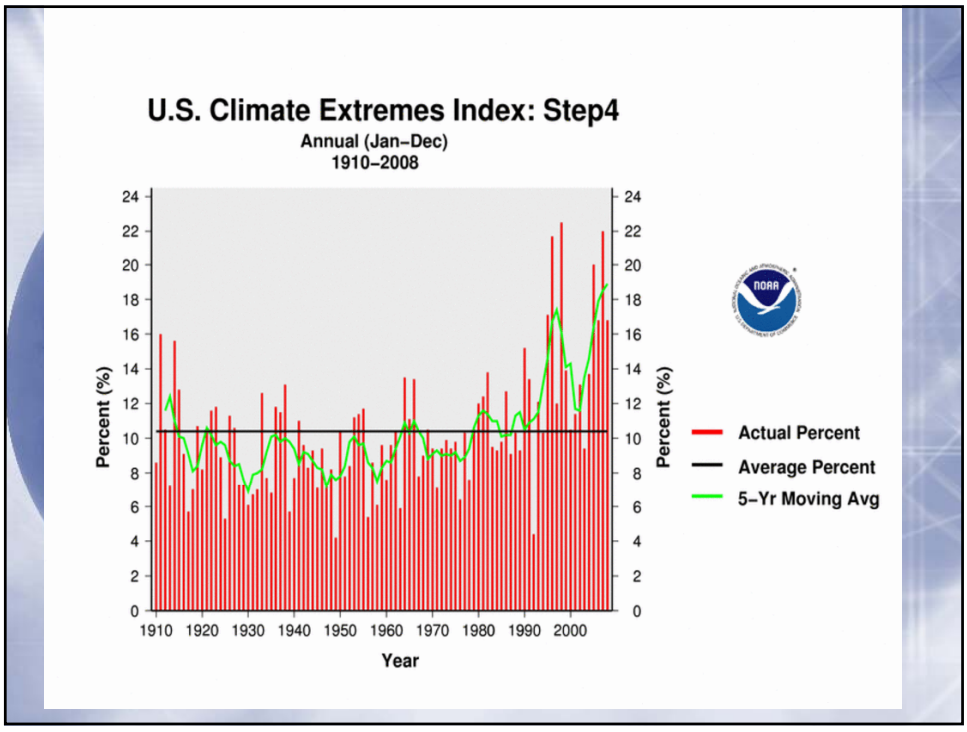


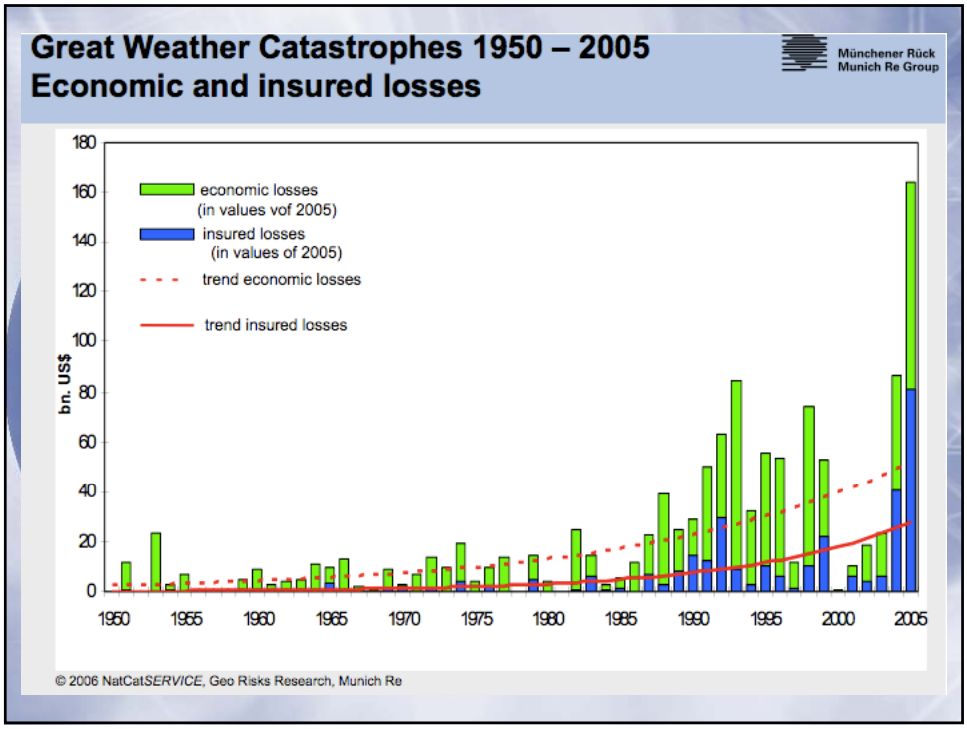
Observed and modeled Arctic sea-ice extent



In the words of the insurance industry

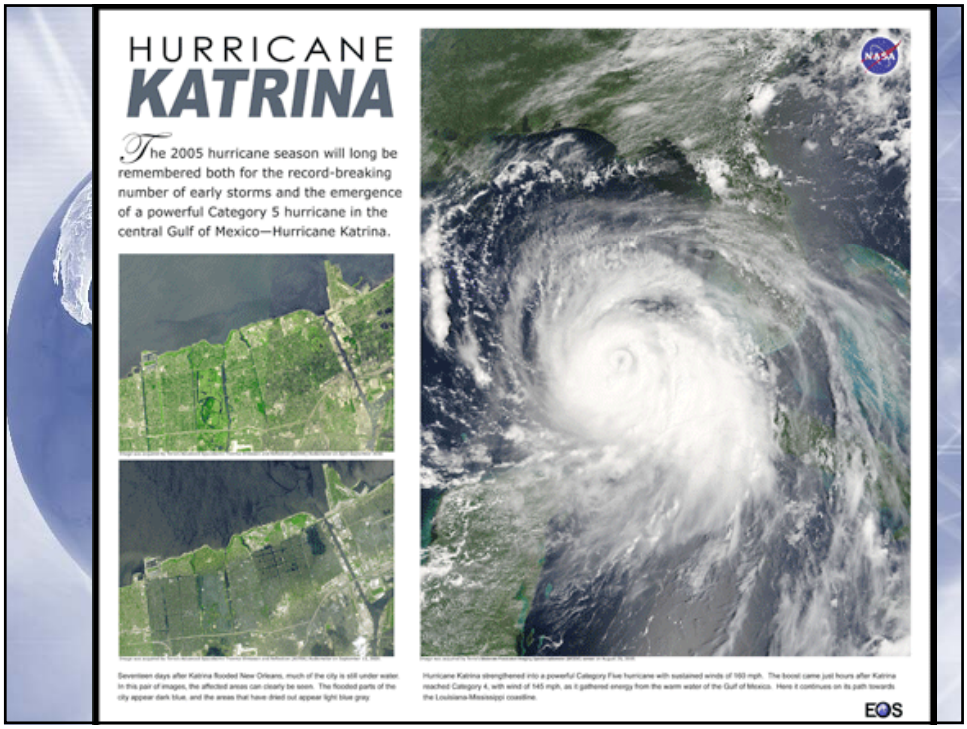
- "Wildfires have increased fourfold since the 1980s, and they are bigger and harder to contain because of earlier-arriving springs and hotter, bone-dry summers. Last year's (2007) fires broke records; this year could be worse. As courageous firefighters beat back the flames, insurance companies continue to pay out billions for wildfire losses across the West."


U.S. Climate Extremes Index: Step4
Annual (Jan–Dec)
1910–2008
Percent (%)
Year
1910 1920 1930 1940 1950 1960 1970 1980 1990 2000
0 2 4 6 8 10 12 14 16 18 20 22 24
Actual Percent
Average Percent
5–Yr Moving Avg



Increased storm intensity

- The power of tropical storms appears to have doubled since 1970
- This is associated with warmer sea surface temperatures
- The frequency of tropical storms is unaffected, it is just that the ones we are getting are more powerful


HURRICANE
KATRINA
The 2005 hurricane season will long be remembered both for the record-breaking number of early storms and the emergence of a powerful Category 5 hurricane in the central Gulf of Mexico—Hurricane Katrina.
NASA
EOS


Hurricane Katrina August 2005
© Munich Re 2005

Costs of Katrina – Munich Re

Climate change is irreversible

- The major heat trapping gas in the atmosphere is carbon dioxide from the burning of fossil fuels
- It has a half life of approximately 100 years
- We will see the responses before we can change them

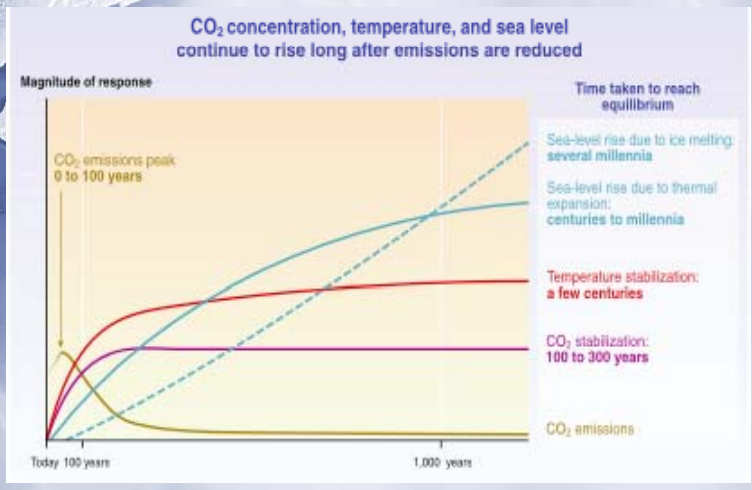
- AP story March 31, 2010
- Boston set a record for the month of March, topping a mark set in 1953, with nearly 14 inches of rain. It is now the second rainiest month since recordkeeping began in 1872.
- New Jersey and parts of New York City also set March records. Rainfall totals reached record levels in Central Park for March. Monthly rainfall approached record levels in Portland, Maine.
- The latest deluge is the second major rainstorm in the region this month.

A resident on Perkins Ave. in Cranston, R.I., walks with a hose to help pump out the water from his house, Tuesday, March 30, 2010, in Cranston, R.I. The street backs up to the Pawtuxet River, which is predicted to his a record stage of 17 feet, eight feet above floor stage. (AP Photo/Stew Milne)


How should planners respond to this information?


Rapidly!

Urgency of Lag Times



*The Deliberate Noncatastrophe**

- "The most elegant forms of management decisions involve problems that never have to be solved because they are prevented from occurring. They are anticipated and sidestepped."
- "The deliberate noncatastrophe is one of the most impressive contributions a manager (or planner) can make."

*Thanks to Sandra Fowkes for this formulation

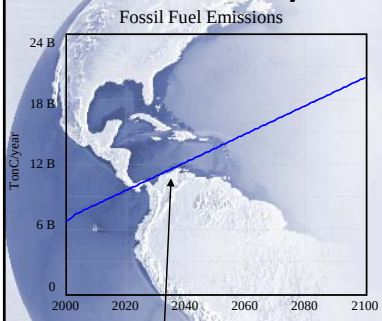
How Many "Stabilization Wedges" Do We Need?

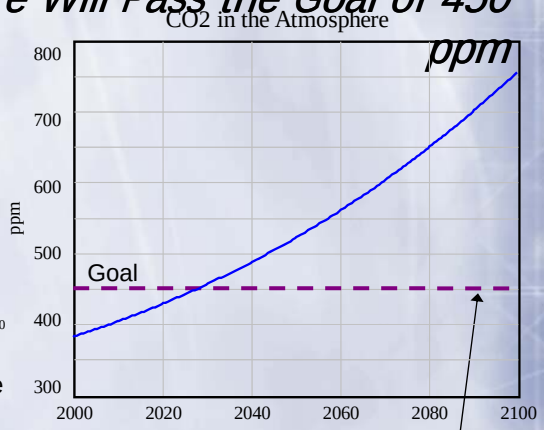
Bill Moomaw
The Fletcher School Tufts University
Center for International Environment and Resource Policy

Credit

- Lead Modeler
  - Dr. Tom Fiddaman, Ventana Systems
    - http://www.metasd.com/index.html
- Modeling and Framing
  - Dr. John Sterman, MIT
    - http://web.mit.edu/jsterman/www/
- Modeling, Framing, and Presentation Design
  - Andrew Jones, Sustainability Institute
    - http://www.sustainabilityinstitute.org/

If Fossil Fuel Emissions Follow the "Business as Usual" Path, CO_2 in the Atmosphere Will Pass the Goal of 450 ppm

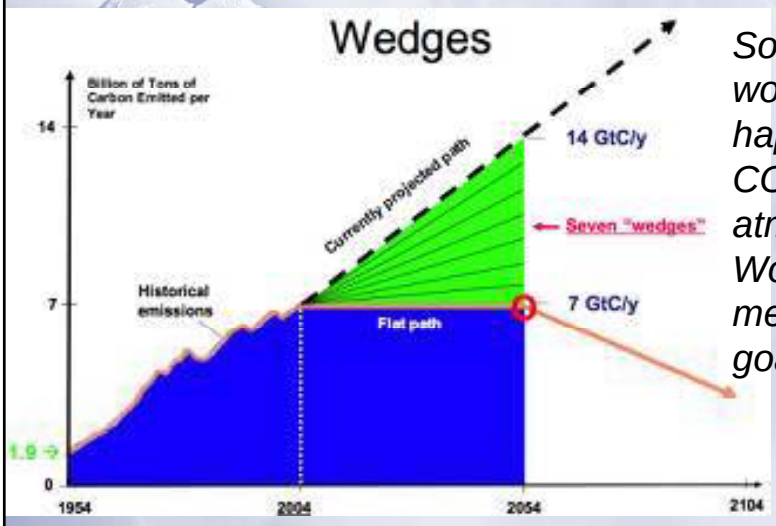




This is comparable to the IPCC "business as usual" future

What would it take to get CO_2 in the atmosphere to stabilize under 450 ppm? How to get the blue line to fall to here?

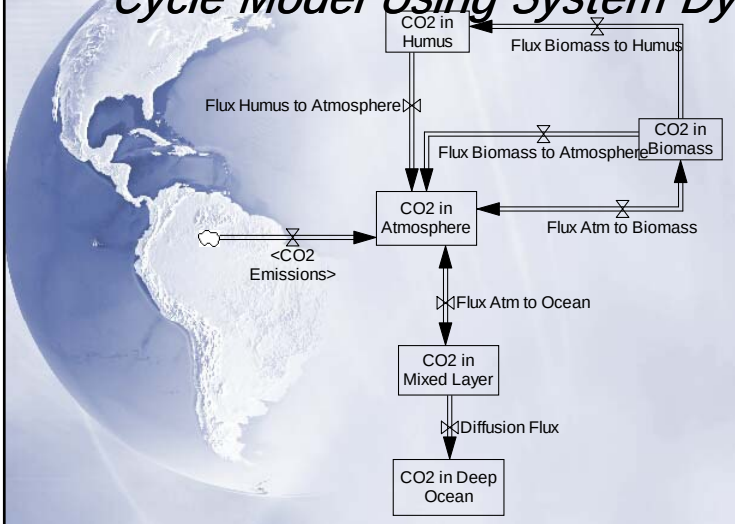
The Wedges Plan Proposes a "Flat path", Leveling Emissions Through 2054 and Then Reducing Them



So what would happen to CO_2 in the atmosphere? Would we meet the goal?

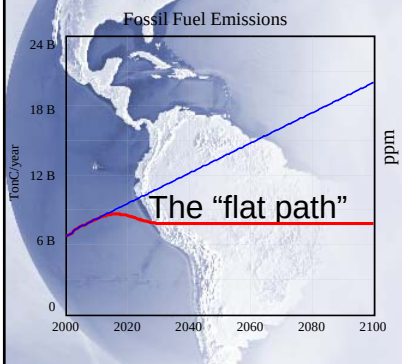
Socolow and Pacala

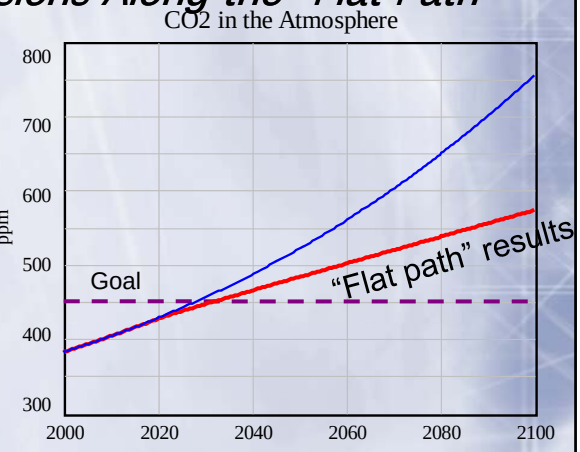
We Will Run Experiments in a Carbon Cycle Model Using System Dynamics



We Simulated a Future Where We Just Level Emissions Along the "Flat Path"

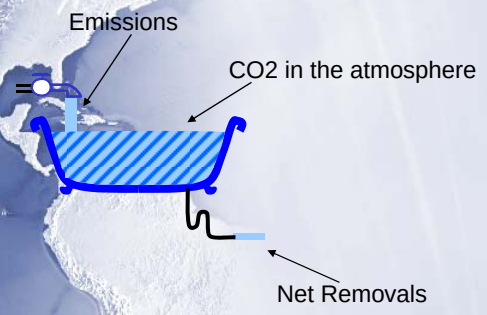
With no "post 2050" reductions





When emissions follow the "flat path," CO_2 concentrations only grow more slowly. Why?

Think of CO_2 in the Atmosphere as a Bathtub

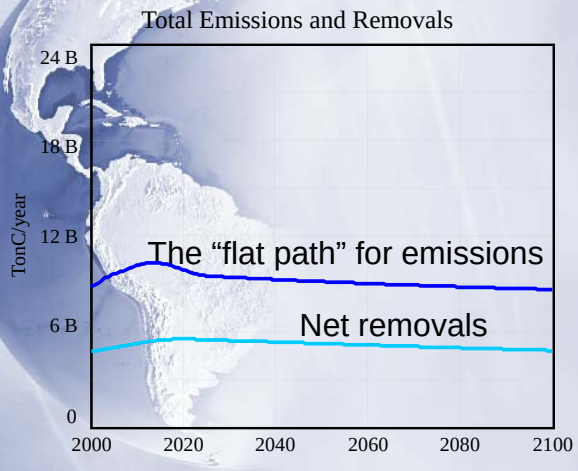


The tub is filled by emissions and drained by net removals into oceans and biomass.

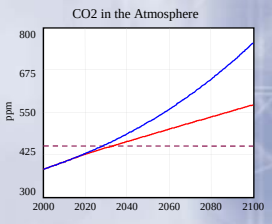
The inflow is roughly double the outflow

The "flat path" caps emissions **above** removals. More is still flowing into the bathtub than is flowing out! So the level of water in the bathtub continues to rise.

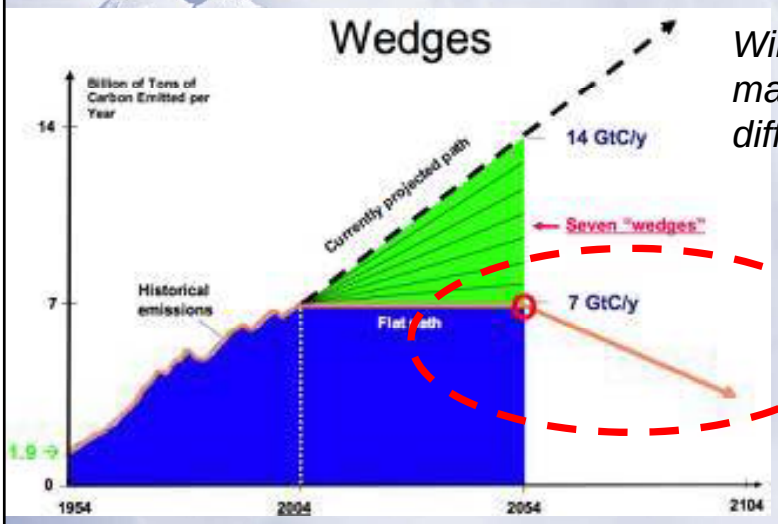
Emissions Still Exceed Removals



So CO_2 in the atmosphere continues to increase.



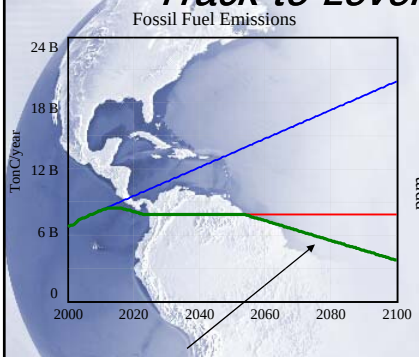
But The Wedges Plan Also Proposes Reducing Emissions After 2054!



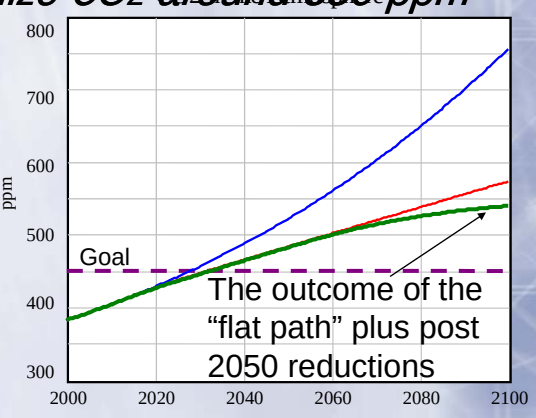
Will that make the difference?

Socolow and Pacala

Reducing Emissions Post 2050 Puts Us On Track to Levelize CO_2 around 550 ppm



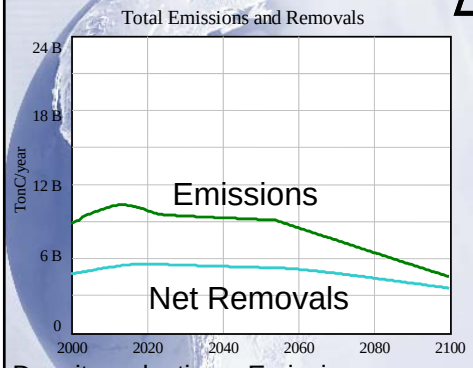
The "flat path" plus post 2054 reductions



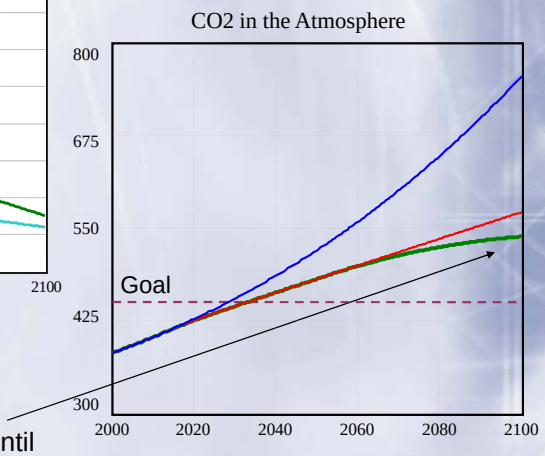
The outcome of the "flat path" plus post 2050 reductions

Emissions exceed net removals all the way to 2100!

What Happened? Why Didn't Emissions Level?



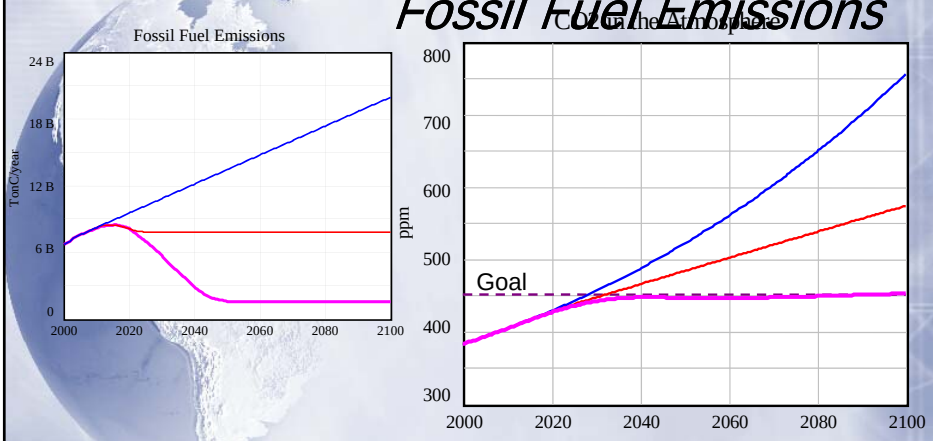
Despite reductions, Emissions exceeded Net Removals through 2100.



CO2 in the atmosphere will rise until the two meet.

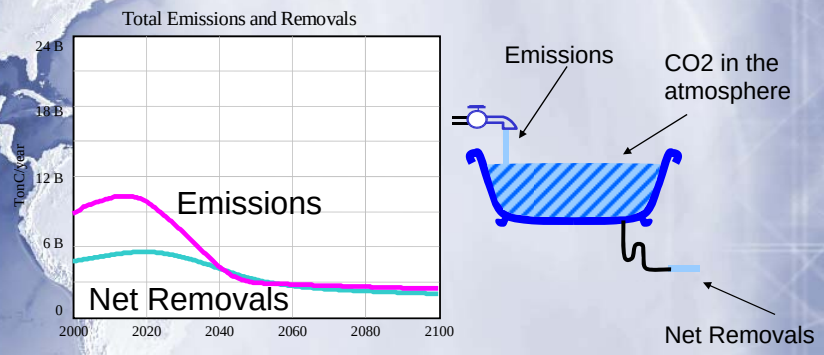
So What Will it Take To Stabilize CO_2 in the Atmosphere Below Our Goal?

It Will Take an 80% Reduction in Fossil Fuel Emissions



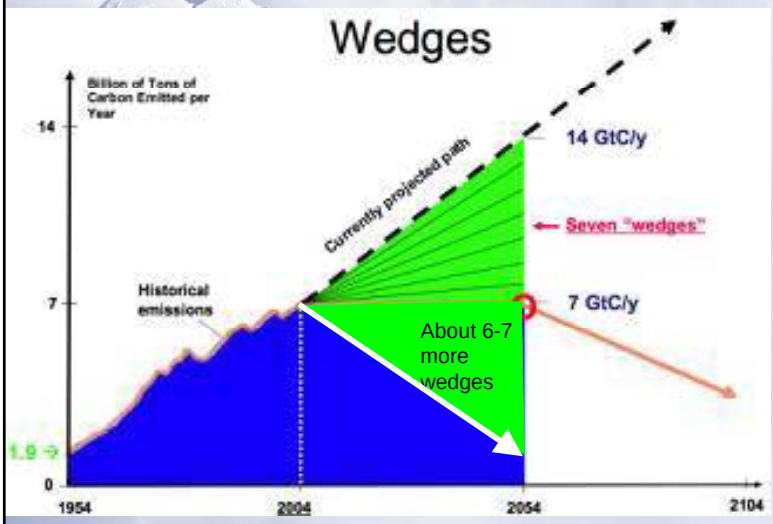
At this point, emissions equal net removals by 2050!

80% Reduction Brings Emissions Down to Meet Removals



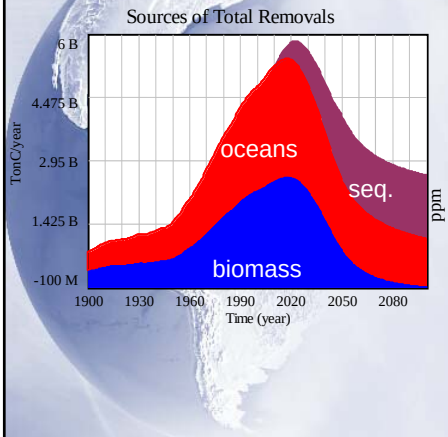
So levels of CO2 in the atmosphere stabilize.

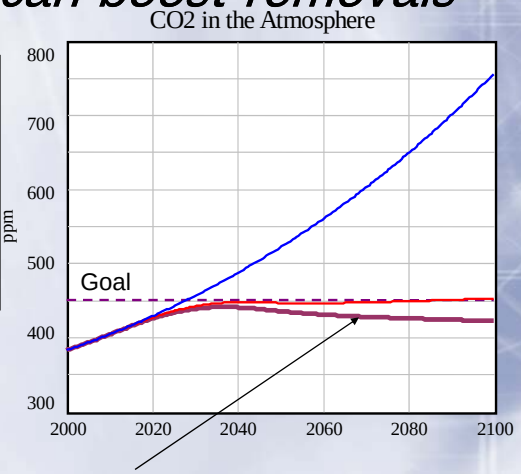
So Meeting the Goal Will Require 7 Stabilizations, Plus 6-7 More



Socolow and Pacala

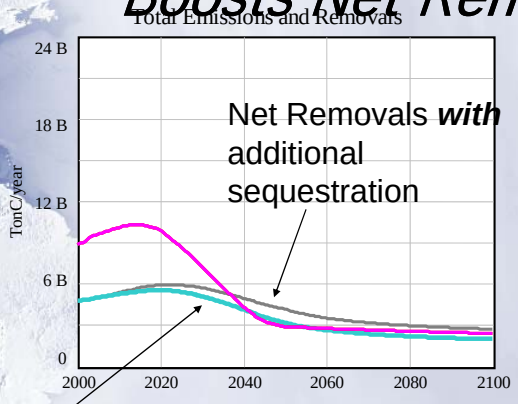
Aggressive Sequestration (seq.) can boost removals





Results with 80% reduction in fossil fuel emissions plus 1.6 GTC/year in additional sequestration by 2050

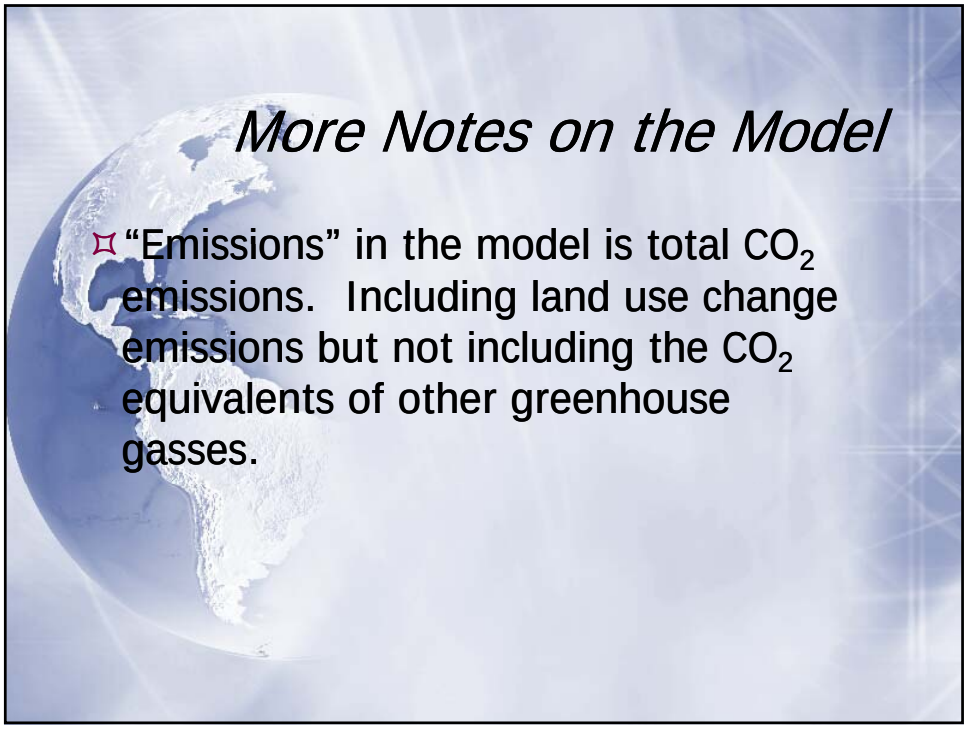
The Added Sequestration Boosts Net Removals



So CO2 in the atmosphere balances out a little earlier and lower

More information

- Models on which the model that created these runs were based
  - http://www.metasd.com/models/index.html#Climate
- Interactive version covering some of these ideas
  - http://www.seed.slb.com/en/scictr/watch/climate_change/challenge.htm
  - http://www.sustainabilityinstitute.org/tools_resources/climatebathtubsim.html
  - http://web.mit.edu/jsterman/www/GHG.html
- Video version
  - http://video.google.com/videoplay?docid=8235725143334110601&pr=goog-sl
- Other related simulations
  - http://www.sustainabilityinstitute.org/climate_change/simulations.html


More Notes on the Model
"Emissions" in the model is total CO_2 emissions. Including land use change emissions but not including the CO_2 equivalents of other greenhouse gasses.

Next Steps

What Happened at Copenhagen?

- Much conflict among developed and developing countries
- China offered a 45% improvement in energy intensity
- US offered a 17% reduction by 2020 if Congress will act
- Great progress on forests to absorb carbon dioxide
- Europe ready to make major reductions
- Reductions proposed will lead to a 3.9 deg C warming by 2050
- Some countries actually sabotaged any agreement, and the diplomacy was appalling

So what is next?

- China is moving on lowering intensity
- US is stuck half way with complex legislation on cap and trade leading to an eventual 83% reduction by 2050 and 17% reduction by 2020 (from 2005) passed in the House of Reps, and a stalled bill in the Senate
- Senators are assailing and trying to eliminate EPAs authority to regulate CO2
- No clear sense of how to turn the Copenhagen Accord into a solid agreement by next November in Mexico

Figure ES-1

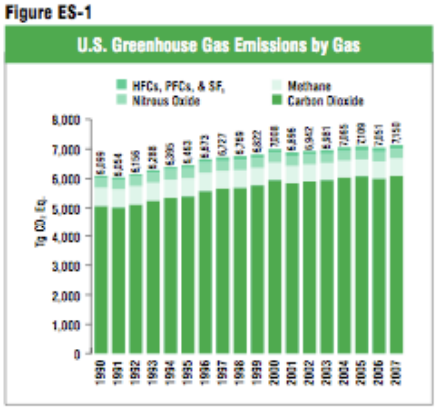
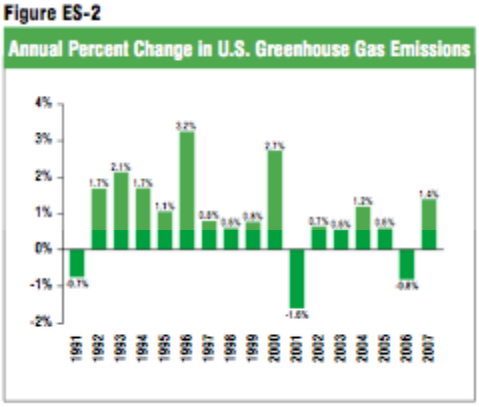
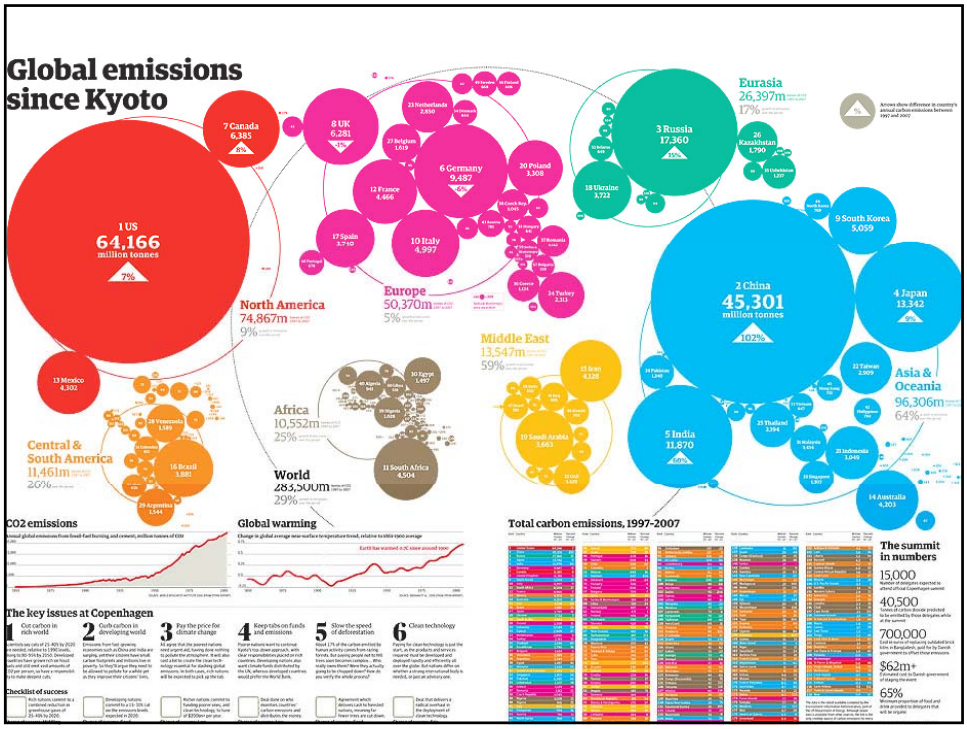
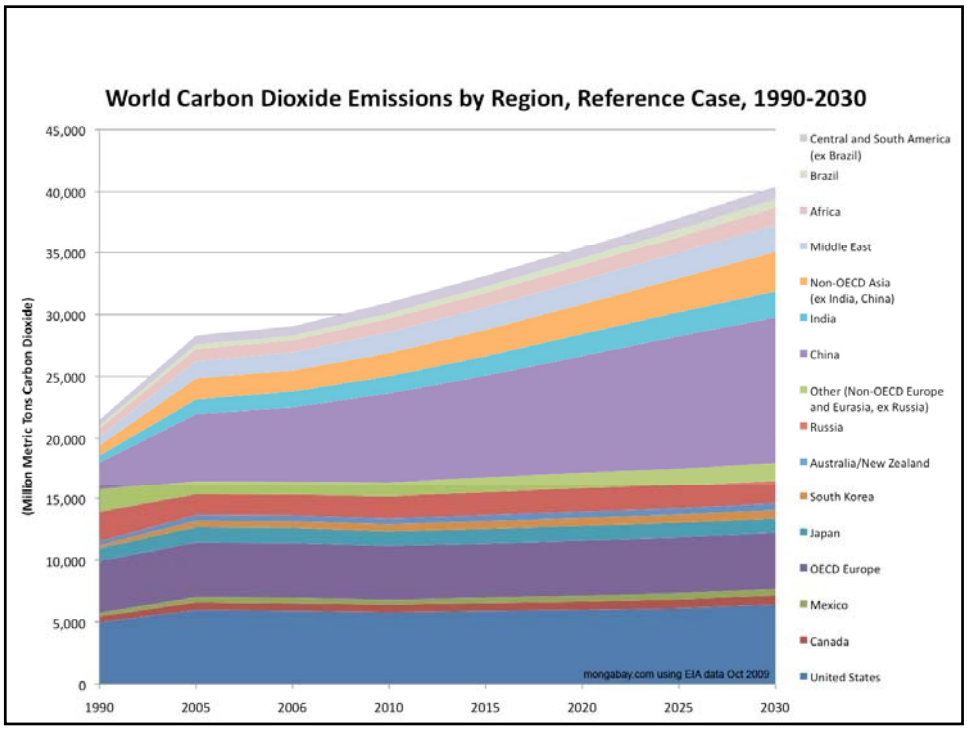


Figure ES-2

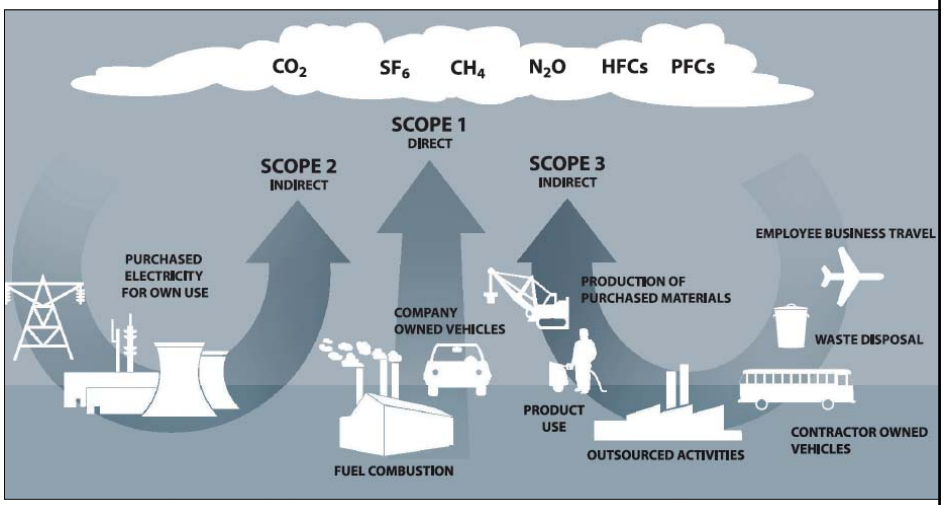



Global emissions since Kyoto
1 US 64,166 million tonnes 7%
North America 74,867m 9%
Europe 50,370m 5%
Eurasia 26,397m 17%
Middle East 13,547m 59%
Africa 10,552m 25%
Central & South America 11,461m 26%
Asia & Oceania 96,306m 64%
World 283,500m 29%
2 China 45,301 million tonnes 102%
3 Russia 17,360
4 Japan 13,342
5 India 11,870
6 Germany 9,487
7 Canada 6,385
8 UK 6,281
10 Italy 4,997
11 South Africa 4,504
14 Australia 4,203
CO2 emissions
Global warming
Total carbon emissions, 1997-2007
The key issues at Copenhagen
The summit in numbers
15,000
40,500
700,000
$62m+
65%

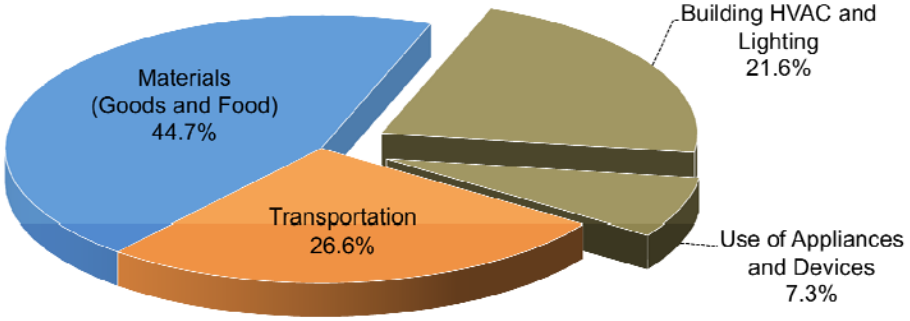

World Carbon Dioxide Emissions by Region, Reference Case, 1990-2030
(Million Metric Tons Carbon Dioxide)
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1990
2005
2006
2010
2015
2020
2025
2030
Central and South America (ex Brazil)
Brazil
Africa
Middle East
Non-OECD Asia (ex India, China)
India
China
Other (Non-OECD Europe and Eurasia, ex Russia)
Russia
Australia/New Zealand
South Korea
Japan
OECD Europe
Mexico
Canada
United States
mongabay.com using EIA data Oct 2009

Municipalities

- Most important actions are at municipal level
  - Land use planning
  - Transportation planning
  - Building codes
  - Street lighting
  - Permitting of industrial activities
  - Purchasing power of municipal governments
  - Educational role in schools
  - Historical commissions
  - Property taxing authority



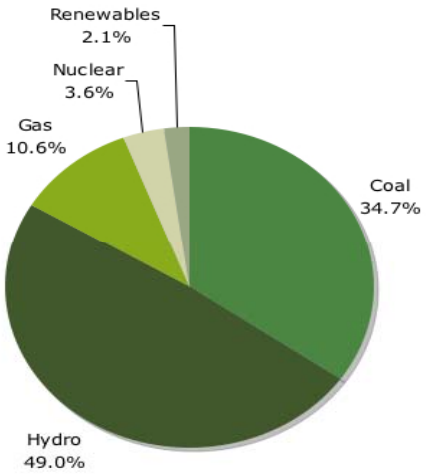
Portland regional emissions

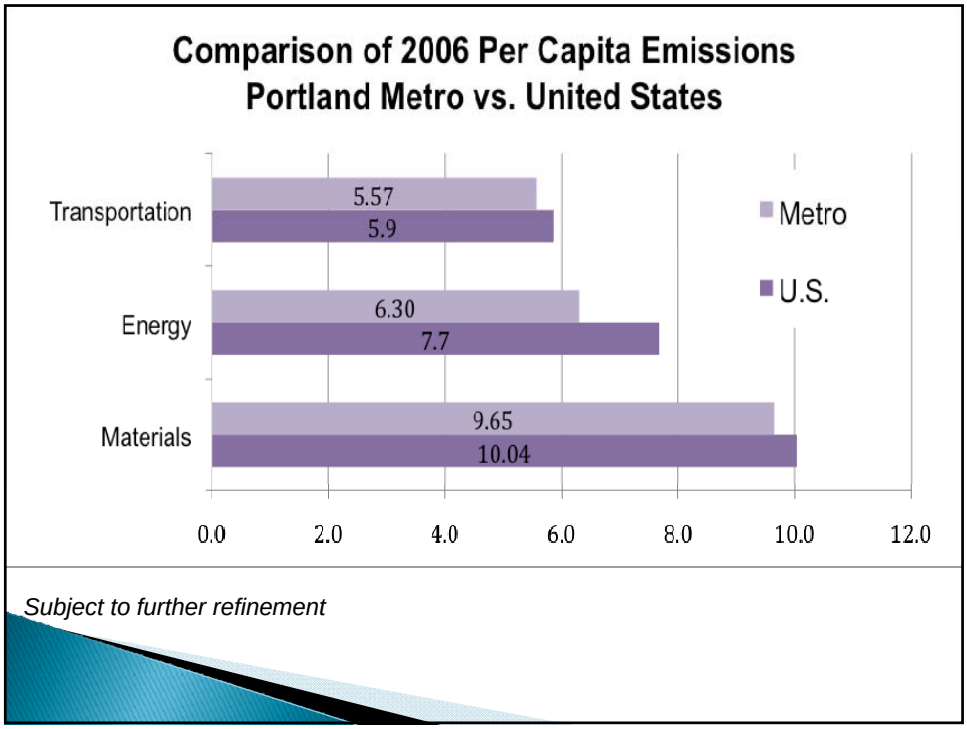


Results: Energy

NW Grid = 30 % Lower Emissions than US Average

Regional Sources of Electricity
Northwest Power Pool (NWPP)





Subject to further refinement

What have others done?

California

- Passed AB 32 a complex set of regulations, incentives and voluntary actions
  - Addresses vehicles and rail transport planning
  - New building codes
  - Development of an anti sprawl development strategy
  - Electric power limitations
- California is also working with several provincial governments in China

Other states

- Massachusetts passed a comprehensive low carbon energy plan
- New York state has passed carbon limiting regulations
- Ten Northeastern states have joined to reduce emissions
  - Currently focuses only on power plants and emissions trading
  - Future plans may go to other sectors including buildings and transportation

Other states

- Washington and Oregon have major renewable energy initiatives
- Renewable portfolio standards are in place for 24 states and DC for electric power generation plus 4 additional states that encourage renewable energy
  - Range from 4% to 24% of production by dates from 2009 to 2025

US Mayors Climate Change Agreement

- 944 Mayors have agreed to its dozen provisions (5/4/09) 50 states 81 million citizens
- Begin with an emissions inventory
- Take actions that reduce emissions through improved planning and practices
- Educates the public

Local Governments for Sustainability (ICLEI)

- ICLEI Cities for Climate Protection – more than 700 cities
- Partners include
  - Clean Air–Cool Planet
  - Intertribal Council On Utility Policy (Intertribal COUP)
  - Sierra Club Cool Cities
  - The Climate Group
  - US Environmental Protection Agency, ENERGY STAR

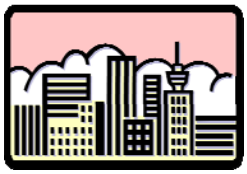
International Cities for Local Environmental Initiatives (ICLEI)

C40 Mayors Address Climate

- In May 2007 the mayors of 40 large cities from around the world met in New York to develop a common approach to addressing climate change, and to engage their national governments in attending to the needs of cities in a changing climate

What Role Can Planners Play in Mitigation?

- Municipal governments can implement policies that reduce carbon dioxide emissions
- Municipalities have authority over
  - Building codes
  - Permitting and regulatory enforcement for projects
  - Planning and zoning
  - Municipal electric utilities & combined heat and power
  - Property tax incentives
  - Construction of municipal buildings and schools
  - Purchase of supplies, services and vehicles

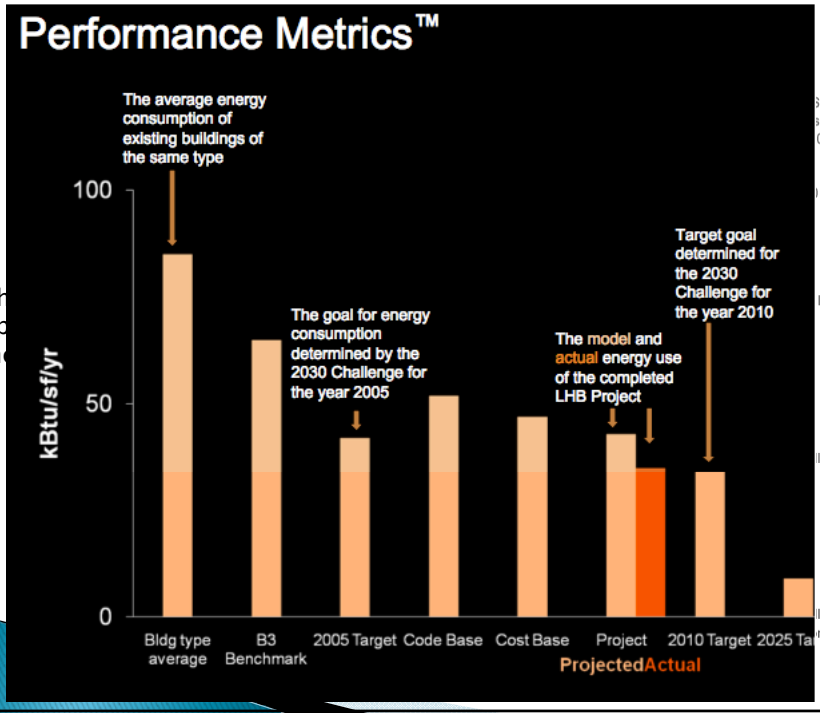


Energy use in buildings

- Buildings use 43% global energy and produce 41% of global emissions
  - Half of the energy used is directly for space heating, hot water and cooking
  - Half is for electricity
- 85% of energy is from fossil fuels
- Potential reductions of net energy and CO2 emissions from buildings is 30-100%
- 80% of carbon dioxide emissions are from urban areas

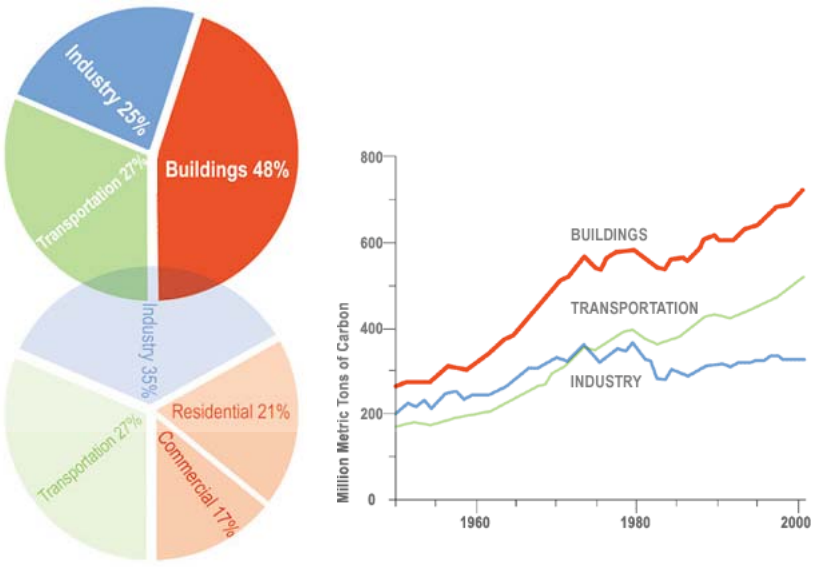
Existing buildings

- The service life of existing buildings is such that on average, they last for 50 – 100 years in the U.S.
- Box store malls have a design life shorter than this
- Commercial urban buildings and university buildings are typically designed for longer periods of a century or longer
- "In the year 2035, three quarters of the built environment in the U.S. will be either new or renovated. This transformation over the next 30 years represents a historic opportunity for the architecture and building community to reverse the most significant crisis of modern time, climate change."
  Architecture 2030



Architecture 2030

- "Unknowingly, the architecture and building community is responsible for almost half of all U.S. greenhouse gas emissions annually. Globally the percentage is even greater."
- Combining the annual energy required to operate residential, commercial, and industrial buildings along with the embodied energy of industry-produced building materials like carpet, tile, glass, and concrete exposes buildings as the largest energy consuming and greenhouse gas emitting sector.



Architecture 2030

Individual city leaders

- Seattle, Washington – Mayor Nichols leadership
- New York City – Mayor Bloomberg initiatives
- Portland, Oregon – ranked first in nation in terms of sustainability
- Cambridge, MA – Cambridge Energy Alliance
- Chicago – Mayor Daley
- Role of mayors, corporations, NGOs and foundations

Building Codes

- Tighter energy performance codes that improve over time can reduce building energy use and lower carbon dioxide emissions
- An Energy Star home (new or renovated) uses 15-30% less energy than a house built to code in most states
- The extra cost of construction is approximately zero!
- This reduces operational energy and emissions, and saves money

The Stata Center for Computer, Information and Intelligence Sciences MIT

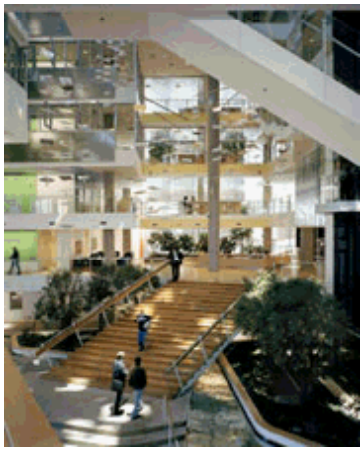
Comments on MIT website

- "Its striking design – featuring tilting towers, many-angled walls and whimsical shapes – challenges much of the conventional wisdom of laboratory and campus building."
- "When the building opened in 2004, Pulitzer Prize-winning critic Robert Campbell wrote in the Boston Globe that the building is "a work of architecture that embodies serious thinking about how people live and work, and at the same time shouts the joy of invention."

Meanwhile down the street, a private company, Genzyme built a LEED platinum corporate headquarters

- "Genzyme Center is designed to be one of the most environmentally responsible buildings ever built in the United States."
- Designed "to meet or exceed the highest standards for green buildings."

Genzyme Center Cambridge, MA



Comments from Genzyme website

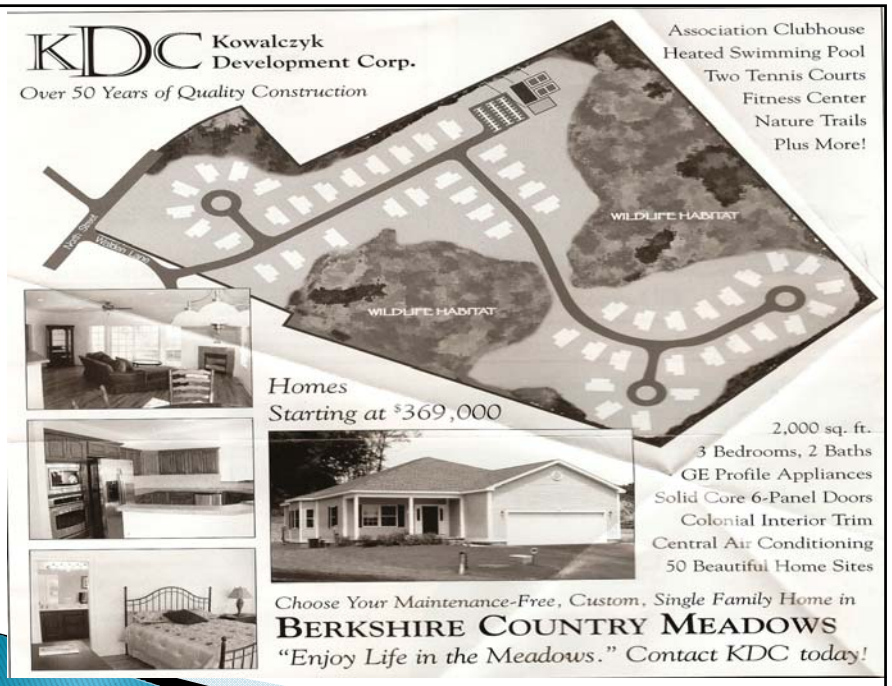
- Sustainable site development – brown field redevelopment & on public transportation
- Uses 34% less water than comparables
- Uses 42% less energy, 75% of employees use natural daylighting
- Uses recycled materials for 75% of building and recycled 90% of waste

Support Innovations

- Establish codes that encourage green roofs to urban heat island, reduce cooling demand and better manage water run off
  - Chicago City hall example
- Utilize roofs for solar panels
- Encourage individual buildings and campuses to become distributed electricity, heating and cooling "trigenerators"

Planning and Zoning

- Energy efficient land use patterns, efficient transportation systems and sprawl reduction are essential for lowering emissions
- Create wind turbine or other renewable energy zones in appropriate locations
- Use landfill areas, transportation corridors and other marginal areas effectively for energy production



Create a Municipal Electric Utility

- Municipal electric utilities can lower residential, city and commercial electric rates
- Promote combined heat and power and district heating and cooling
- Municipal utilities can innovate with renewable energy
  - See what Hull Massachusetts has done

Property Tax Incentives

- Some states provide for property tax incentives for cluster zoning, higher density or integrated transportation/land use development
- The use of renewables, ground source energy or other efficient low emission building technologies to be exempt from local property taxes
- One Massachusetts town gave car excise tax relief to

Municipal Buildings

- Establishing provisions for low emission public buildings can provide important learning examples for citizens, contractors and state and federal officials
- High-performance efficient schools are living laboratories for students, their families and the community

Purchasing

- Municipal purchasing of zero emission electricity can make major reductions in emissions
- Municipal purchase of low emission goods and services reduces emissions and sets a good example for citizens
- Municipal purchase of efficient vehicles
- City programs that help employees to save energy, money and lower emissions

Planners Need to Integrate Planning with Incentives

- Insert tax incentives into the plan so that higher density development has lower taxes than low density sprawl
- Granting faster approval to innovative buildings and complexes that reduce energy use and emissions
- Reward high performance builders and developers with preference for municipal projects

Create a Future Low Emissions Community Vision

- "The community has the capability to lead a carbon neutral lifestyle – with all energy for buildings and local transport being supplied by renewable energy sources."

Statement about a private, low emissions community in UK

Meeting the Target

- Begin with the most cost efficient options by replacing inefficient lighting, office equipment and vehicles
- Upgrade building energy performance with ever tightening building codes

Vision of Planners

- "…the true value of any site is determined by the amount of accommodation the local planning area subcommittee will allow to be built on it – empowering local communities to promote zero emissions developments, without relying on large central government grants, or asking the developer to pay for the increased build costs of super efficient urban fabric." (Bed Zed UK)

Aligning Values and Incentives

- It is essential to align public and private values with sound energy and climate policies
- Incentives must reinforce sound planning

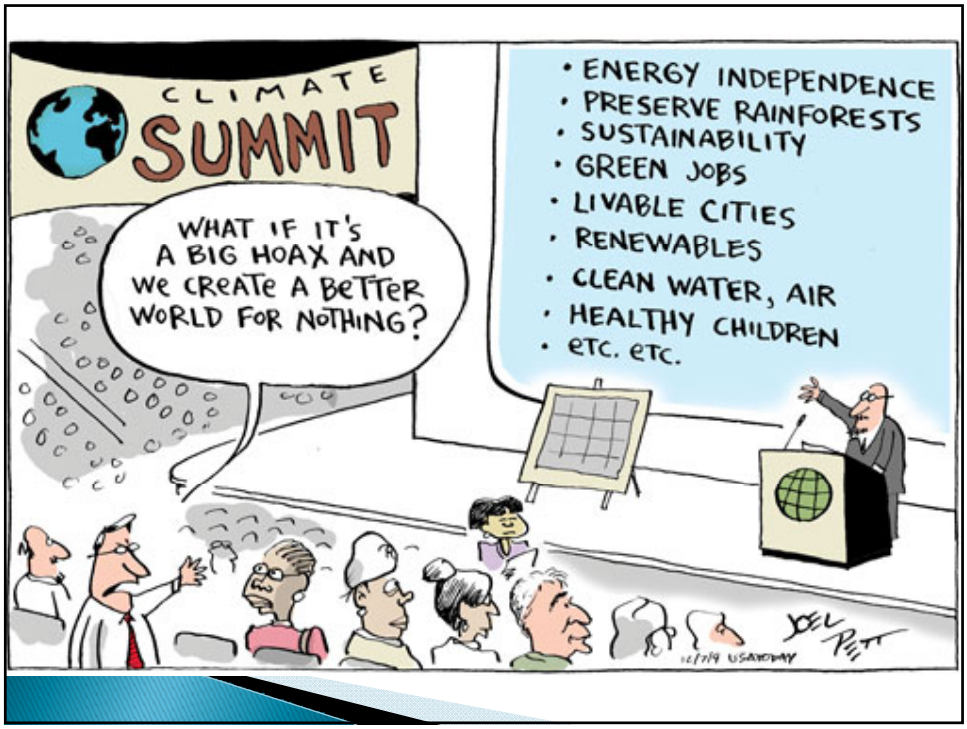
World Mayor's Council for Climate Change

- "Cities have the power to affect the main sources of air pollution and greenhouse gases"
- "Local governments are key actors in accelerating climate change mitigation"
- "Establish action plans for making the cities more climate-resilient"
- ICLEI April 11, 2007

Planning and creating resilient efficient cities powered by low carbon energy and served by effective transportation systems is the key to sustainability in a climate changing world

Lessons from Ozone Protection

- 1973 Two chemists describe stratospheric ozone depletion from continued release of CFCs into the atmosphere
- 1974 Oregon and Vermont ban CFCs use in spray cans
- 1975-76 US Congress develops legislation banning CFCs in spray cans, which is adopted in 1977
- 1985-87 International treaty adopted
- 2010 End all production of CFCs world wide


CLIMATE
SUMMIT
WHAT IF IT'S A BIG HOAX AND WE CREATE A BETTER WORLD FOR NOTHING?
• ENERGY INDEPENDENCE
• PRESERVE RAINFORESTS
• SUSTAINABILITY
• GREEN JOBS
• LIVABLE CITIES
• RENEWABLES
• CLEAN WATER, AIR
• HEALTHY CHILDREN
• ETC. ETC.

Metro provides planning, policy making, and services to preserve and enhance the region's quality of life. Our regional vision for Making the Greatest Place, based on values established by residents in the 2040 Growth Concept, includes:

VIBRANT COMMUNITIES
People live and work in vibrant communities where they can choose to walk for pleasure and to meet their everyday needs.

ECONOMIC PROSPERITY
Current and future residents benefit from the region's sustained economic competitiveness and prosperity.

SAFE AND RELIABLE TRANSPORTATION
People have safe and reliable transportation choices that enhance their quality of life.

ENVIRONMENTAL LEADERSHIP
The region is a leader in minimizing contributions to global warming.

CLEAN AIR AND WATER
Current and future generations enjoy clean air, clean water and healthy ecosystems.

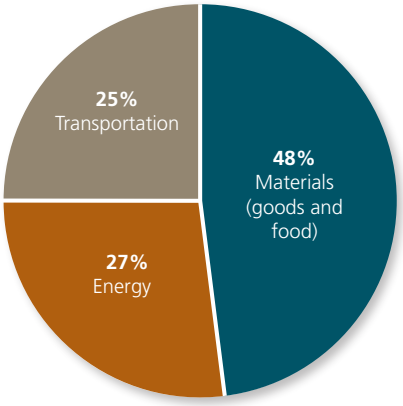
EQUITY
The benefits and burdens of growth and change are distributed equitably.

A snapshot of the greenhouse gas inventory for the Portland metropolitan region

Residents and businesses in the Portland metropolitan region are responsible for an estimated 31 million metric tons of greenhouse gas (GHG) emissions annually.

In 2010 Metro completed a greenhouse gas inventory for the region. The emissions inventory was intended to establish a snapshot of the carbon footprint of the region in order to focus planning efforts to achieve long-term greenhouse gas emissions reductions.

Major sources of metropolitan area greenhouse gas emissions



This analysis of greenhouse gases groups major emission sources by systems that represent multiple parts of the economy that work together to fulfill a particular need. Various economic sectors interact to meet our demand for transportation, energy, goods and food. Each of these systems presents opportunities for prevention and strategies to reduce GHG emissions.

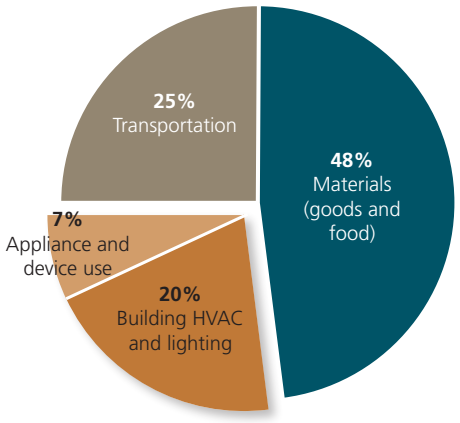
ENERGY: Consumption of electricity and natural gas

Energy used in buildings is the source of 27 percent of the region's greenhouse gas emissions.

Appliance and device use includes emissions resulting from the electricity and fuel used by washing clothes, cooking, refrigeration and the use of office equipment, computers and other appliances, as well as the industrial emissions associated with extracting and processing the associated fossil fuels.

Building HVAC and lighting includes the emissions resulting from heating, cooling, ventilation and lighting residential and commercial buildings, as well as industrial emissions associated with extracting and processing the associated fossil fuels.

Metropolitan area greenhouse gas emissions with energy split



Metro

www.oregonmetro.gov/climatechange

Metro

People places. Open spaces.

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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TRANSPORTATION: Passenger transport and local freight

Transportation is responsible for about 25 percent of the region's greenhouse gas emissions. These emissions come mainly from on-road vehicles and air travel, with small shares from rail, marine and transit sources.

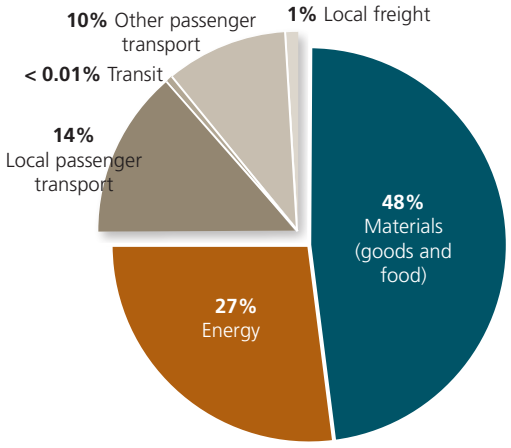
Local freight represents emissions from in-region movement of vehicles weighing more than 10,000 pounds.

Other passenger transport represents long-distance passenger travel, including emissions from aircraft, inter-city rail, inter-city buses, cars and light trucks making long-distance trips crossing the urban growth boundary.

Transit refers to emissions from electricity consumption for the operation of light rail, and diesel and biodiesel consumption for the operation of buses.

Local passenger transport includes emissions from all travel of cars and light trucks throughout the region.

Metropolitan area greenhouse gas emissions with transportation split

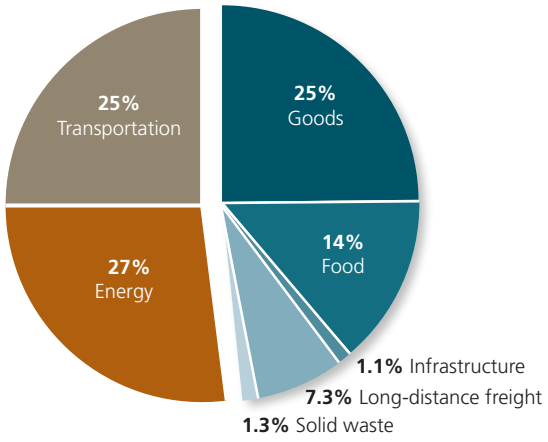


MATERIALS: Consumption of goods and food

Nearly 48 percent of our region's greenhouse gas emissions are estimated to come from the consumption of goods and food by residents and businesses in the Portland metropolitan area.

The materials section of the pie chart represents regional emissions related to resource extraction (e.g., mining, forestry and agriculture), manufacture, distribution and disposal of goods and food for final use and consumption by homes and businesses.

Metropolitan area greenhouse gas emissions with materials split



Provision of goods represents emissions associated with production and processing of the goods and services we use on a daily basis.

Provision of food represents emissions associated with production and processing of the food we consume on a daily basis.

Infrastructure represents the manufacture, distribution and installation of materials into the built environment.

Long distance freight represents the movement of goods and food from remote production sites to the metropolitan area.

Solid waste represents the disposal of goods and food, including the collection and landfill process.

For additional details, contact Mike Hoglund at Mike.Hoglund@oregonmetro.gov.
Good Company performed this analysis, in partnership with Metro staff.

Toolbox of policy options for achieving a sustainable and prosperous region and reducing greenhouse gas emissions

Rate the priority of each policy option to indicate which policies the region and local governments should focus on to achieve the region's six desired outcomes and reduce the region's greenhouse gas emissions. The policy options below are examples. *The list is not intended to be exhaustive or prescriptive, but to serve as a starting point for your small group discussion.*

Your input will guide future policy considerations for meeting state greenhouse gas emissions reduction targets and future research on the feasibility and effectiveness of different policies to address climate change.

#1 ENERGY TOOLBOX OF POLICY OPTIONS	PRIORITY RATING High	Medium	Low
Increase investment in green development and renewable energy *Leverage and expand existing resources (e.g., tax credits, rebates, grants, bonds) to fund energy efficiency, renewable energy and green infrastructure.*	☐	☐	☐
Adopt energy efficiency standards *Adopt building and site design standards and incentives to increase energy efficiency in homes and businesses.*	☐	☐	☐
Develop a system for monitoring energy use in buildings *Establish a system for reporting on the energy performance of new and existing buildings.*	☐	☐	☐
Other *(please fill in, see reverse side for additional space)*	☐	☐	☐
Other *(please fill in, see reverse side for additional space)*	☐	☐	☐

#2 LAND USE AND TRANSPORTATION TOOLBOX OF POLICY OPTIONS	PRIORITY RATING High	Medium	Low
Increase mixed-use development in centers and corridors *Change zoning to encourage more infill and redevelopment, and to allow mixed-use, transit-oriented development in centers and along corridors served by high-quality transit.*	☐	☐	☐
Charge user fees *Implement fees for vehicle mile traveled, greenhouse gas emissions, congestion pricing, tolling or other fees to reduce vehicle miles traveled.*	☐	☐	☐
Expand commuter trip reduction and traveler information programs *Expand employer-based programs such as subsidized transit passes, flex time and telecommuting, vanpool and carpool programs and trip planning programs.*	☐	☐	☐
Improve system efficiency *Increase traffic signal coordination, transit signal priority at intersections, and incident and travel time information to reduce idling emissions and vehicle miles traveled.*	☐	☐	☐
Expand bike, pedestrian and trail connections *Complete gaps in sidewalks, bike facilities and the regional trail system, improve bike and pedestrian access to transit and other destinations, and provide bicycle parking.*	☐	☐	☐
Expand transit service *Expand transit infrastructure, frequent bus service and high capacity transit service in areas with transit-supportive development patterns.*	☐	☐	☐
Manage parking *Manage parking supply and demand to use land efficiently and reduce vehicle miles traveled (e.g., parking districts, shared parking, timed parking and priced parking).*	☐	☐	☐
Increase vehicle fuel efficiency and use of lower-carbon fuels *Implement CAFÉ standards and provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging stations).*	☐	☐	☐
Implement truck diesel retrofits and truck stop electrification *Retrofit truck exhausts to reduce diesel particulate emissions and provide weigh-in-motion stations and electrification at truck stops to reduce idling.*	☐	☐	☐
Increase freight rail capacity and fix freight rail system bottlenecks *Increase rail capacity to allow some freight to shift from trucks to rail and enable greater use of the more fuel-efficient double-stack rail cars.*	☐	☐	☐
Other *(please fill in, see reverse side for additional space)*	☐	☐	☐

#3 MATERIALS TOOLBOX OF POLICY OPTIONS	PRIORITY RATING High	Medium	Low
Expand food composting and other waste reduction programs *Develop infrastructure to collect and process food waste in the region and capture more materials from homes and businesses for reuse and recycling.*	☐	☐	☐
Promote local food production *Promote local food production through policies and incentives to reduce the greenhouse gas emissions associated with food production, packaging and transportation.*	☐	☐	☐
Adopt green building standards for construction and materials *Adopt building and site design standards and incentives to increase sustainable materials use and reduce greenhouse gas emissions related to the extraction, transportation and disposal of materials.*	☐	☐	☐
Promote product stewardship and producer responsibility *Promote product stewardship to require producers to bear or share the responsibility for the resource and waste impacts of products, thus encouraging more sustainable product design.*	☐	☐	☐
Other *(please fill in, see below for additional space)*	☐	☐	☐
Other *(please fill in, see below for additional space)*	☐	☐	☐

WHAT POLICY OPTIONS ARE MISSING THAT SHOULD BE CONSIDERED?

WHAT IMMEDIATE ACTIONS ARE YOU WILLING AND/OR ABLE TO TAKE IN YOUR COMMUNITY TO ADDRESS CLIMATE CHANGE?

Your Name:	**Affiliation:**