Regional Sustainable Mobility & Climate Change Planning

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Los Angeles County Metropolitan Transportation Authority (Metro)
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Presentation Overview

- Urban Sustainability & Climate Change

- Metro’s Climate Change & Sustainability Strategic Direction
  - Carbon Footprint and Carbon Shadow Analysis
  - Sustainable Mobility Corridors Concept
  - Sustainable Mobility Transit Boulevards Concept
  - Regional Bicycle-Transit Access
  - Transit Oriented Development
  - Regional Congestion and Parking Pricing Pilot

- European Study Mission Insights

- Challenges for Sustainable Transportation Planning
Transportation & Impact to Climate Change

GLOBAL CLIMATE CHANGE

- Natural Activities
- Human Activities
  - Urban
    - Air
      - Rail Freight
      - Off-Road Construction Vehicles
    - Surface
    - Sea
    - Autos/Trucks
      - Roads
      - Transit

Local Land Use & Transportation Funding Policy Heavily Influences Travel

Produced By: Timothy Papandreou 8-14-07 Metro Countywide Planning
Urban Sustainability-How Do We Get There?

A
UNSUSTAINABLE CITIES
WE ARE HERE

B-Y
HOW DO WE GET THERE?

Z
SUSTAINABLE CITIES
WISH WE WERE HERE
Planning Pyramid Needs to Shift Gears

TRANSPORTATION PYRAMID

- Special Trips
  - Car Sharing
  - Transit & RideShare
- Some Trips
  - Walking
  - Bicycling
- Most Trips
  - Carpool

Conventional Urban Transportation Planning

Sustainable Urban Transportation Planning

Produced by Timothy Papandreou 2004
Climate Change Mitigation & Adaptation is Local
Hotter Days Lead To More Smog Related Illnesses

Los Angeles Ozone Levels (1995-2000)

Source: California Environmental Protection Agency
Urban Sustainability Strategies

The sum of all these polices reduces GHGE, Pollution & sets the path to Sustainability
Metro Sustainability/Climate Action Strategic Direction

- **Focus on Regional Leadership, Influence, Coordination, Integration & Partnership**
  - 88 cities, 40 special districts, business & community stakeholders
  - Support Regional Charter on Sustainability & Climate Action to manage Carbon Footprint & Carbon Shadow

- **Leverage funding & programming authority to influence policy & funding decisions at the local, state & federal level.**
  - Strategic Efficiency, Capacity Expansion
  - Sustainable Mobility Corridors Policy
  - Sustainable Mobility Transit Boulevards Policy
  - Travel Demand Management Strategies

- **Explore new sustainable revenue sources**
  - Regional Carbon Fee/Sales Tax
  - Prioritize funds for lower-carbon transportation
Southern California Growth Visioning

2% of region’s area (CBDs, Transit Boulevards) to absorb 25% population and employment growth
Calculating Metro’s Transportation Footprint/Shadow

Carbon Footprint-Metro’s actual energy use

Carbon Shadow- LA County’s indirect carbon emissions from:
  • VMT (land-use, road design, parking & pricing policies) &
  • Energy Consumption (Congestion, State & Federal transportation vehicle, fuels and funding policy)

Gross LA County Transportation Emissions ___ MMT CO2e
(Transit/Auto Energy Consumption, other emissions)

CO2e Displacement ___ MMT CO2e
(Mode Shift: Transit, Ped, Bike/Green Energy)*

Net LA County Transportation Emissions ___ MMT CO2e
The sum of all options provides the greatest chance in reducing the countywide transportation sector’s contribution to Climate Change.
GHG Emissions by Mode

Walking, Bicycling and Transit is the most sustainable form of transportation

- 40% of all trips under 2 miles
- 61% under 5 miles
- 17-20% of adults would bike to work sometimes if it was safer

California Air Resources Board Bicycle Fact Sheet
Reducing Vehicle Miles Traveled Has the greatest impact on Climate Change

Reducing a vehicle trip is 6 times more likely to impact Climate Change than Regional Air Pollution.

Source: Air Resources Board EMFAC Model
LA’s Surface Transportation Carbon Shadow

2007: 38-40 Million Metric Tons CO2 equivalent (MMT)

2030: 23-25 MMT CO2e

33% Reduction Goal (Likely Scenario)

LACMTA/Munis might see increases in GHG’s due to expanded services Overall transportation sector will see GHG’s reduce.
Current forecasting model proxies give inconsistent results
Framework for Sustainability Implementation

Metro Sustainability Program

Air Quality & Climate Change
- Transportation Planning & Programming Coordination
- Legislative/Regional Policy Coordination & Analysis
- Climate Registry & Carbon Finance/Fee/Trading Coordination
- Demand/Congestion Management
- Vehicle/Fuel Emission Reductions
- Metro Air Quality/Sustainability & Climate Change/Congestion Reduction Task Forces Coordination

Energy
- Efficiency & Conservation
- Performance Audits
- Solar/Wind Power
- Infrastructure Retrofit/Green Buildings
- Wayside Generation
- Other Renewable Resources

Program Support
- Design and Construction Guidelines
- Sustainability Management Systems (Energy/Recycling/Water/Waste Management)
- Green Procurement Policy
- ISO 14001 & other Certifications
- Public and Private Sustainability Partnerships & Coordination
- Communications

What have we done?
What do we need to do?
<table>
<thead>
<tr>
<th>Project #</th>
<th>Projected Sustainability Programs and Projects FY 09-FY 13</th>
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<tbody>
<tr>
<td>1</td>
<td>Implementation of Regional, Statewide, and Federal Policies (statutes, regulations and other agreements).</td>
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<td>2</td>
<td>Develop Regional Climate Change Action Plan, identify mitigation &amp; adaptation goals &amp; strategies. Adapt the multi-modal transportation system investments to the effects of climate change.</td>
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<td>3</td>
<td>AB 32/Federal Reauthorization/Federal Climate Change &amp; related legislation &amp; sustainability policy integration into new local funding measures, Call for Projects, Long Range Transportation Plan &amp; all other planning and programming policies.</td>
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<td>4</td>
<td>Develop Sustainable Mobility Corridors &amp; Sustainable Mobility Transit Boulevard strategies to optimize &amp; prioritize regional transportation system investments.</td>
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<td>5</td>
<td>Develop integrated land use/transportation/energy indicators policies to optimize the sustainability of regional transportation system investments. Refine modeling software tools to help determine what investments result in the highest and most comprehensive sustainability benefits.</td>
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<tr>
<td>6</td>
<td>Enhance Energy Portfolio by developing and exploring other sources of renewable energy (e.g., solar panels, wind, regenerative braking and other capture technologies).</td>
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<tr>
<td>7</td>
<td>Perform energy audits, implement energy efficiency methods, best practices and develop a comprehensive energy independence and security strategy.</td>
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<tr>
<td>8</td>
<td>Identification and pursuit of renewable energy and sustainability demonstration grants, projects and new funding opportunities.</td>
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<td>9</td>
<td>Develop Sustainability Information Management System (SIMS) for our agency-wide enhanced Environmental Management System.</td>
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<td>10</td>
<td>Implement Division 10 Improvement Projects identified in EMS development.</td>
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<td>11</td>
<td>Develop the Sustainability Design Policy for Joint Development Projects.</td>
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<td>12</td>
<td>Roll-out of Enhanced EMS at Bus Divisions.</td>
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<tr>
<td>13</td>
<td>Development of Rail Division EMS Pilot Project.</td>
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<tr>
<td>14</td>
<td>Development of Green Procurement Policy and Greening the Supply Chain.</td>
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<tr>
<td>15</td>
<td>Communications and Outreach Program Implementation.</td>
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Sustainable Mobility Corridors Concept

- Coordinate Modes, TOD opportunities, ITS in Corridor
- Identify and close gaps in multi-modal system & Build Green
- Reduce Peak Freeway and Parking Demand (Mode Shifting)
- Metro Orange Line-1/3 of new riders were US-101 commuters
  - Bicycling, Transit increases and 4 new TOD underway
Los Angeles Regional Rail Network

Metro Rail/Metrolink

7 line Commuter rail
>50,000 daily riders
Opened 1994-1999
Ultra-low sulfur diesel Hybrid-CNG Potential
Metro Rail & Transitway Network

Since 1990
2 subway lines
>165,000 riders

3 light rail lines
>145,000 riders

3 Transitways
>50,000 riders

2 LRTs const.
>70,000 riders

22 Line Metro Rapid & Bus System
>1.25 million riders
Potential Sustainable Mobility Corridors

- Red Line Extension
- Yellow Line
- Rte. 134 Transit Corridor
- Gold Line Foothill Extension
- Silver Line
- Harbor Subdivision ROW
- Green Line

* Regional Connector Project from 2003 SRTP
** Project proposed with private sector funding
Universal Design Concept

- Complete & Green Streets and Transit Supportive Land-Uses
- Integrates multi-modal transportation infrastructure, information, operations, energy inputs with the land uses at the design phase
Sustainable Mobility-System Demand Analysis

Los Angeles County Transit Ridership by Line

- Study Area
- Transit Dependent Area
- High Density Employment Centers
- Los Angeles National Forest
- Santa Monica Mountains
- Warner Center
- Burbank
- Glendale
- Pasadena
- West Hollywood
- Hollywood
- Universal City
- Glendale
- Westwood
- Wilshire
- West LA
- Watergardens Santa Monica
- Century City
- LA Med Ctr
- CSULA
- Santa Monica
- Miracle Mile
- Norma
- Downey
- Long Beach
- LB Mod Ctr
- CSULB
- Ventura
- Palos Verdes Peninsula
- Inset Map

<10,000 Boardings
- Local Bus
- Metrolink
- Regional Bus
- Metro Busways

10,000-25,000
- Top 20 Regional Bus Lines
- Metro Green Line

25,000-45,000
- Ventura Metro Rapid Line
- Metro Rapid Lines

45,000-65,000
- Metro Blue Line

65,000-80,000
- Metro Red Line

>80,000 Boardings

1 hour by Existing Bus
Sustainable Mobility - Social Equity Analysis
Transit Boulevard Analysis
Bike-Transit Station Access Strategies Cont.

- Electric bike program connecting community to transit station
- Goal to reduce auto parking demand at park ‘n’ ride facilities
  - 12 month pilot with 200 parties have enrolled for rebate
  - 40 electric bikes purchased and in service
    - Targeting up to 60 MyGo Getters

- Benefits to Metro Rail Station/Neighborhood:
  - MyGo Getters average use 3 times per week
  - 6000 SOV Car Trips & 104,000 miles Avoided/yr (38 MTCO2e)
  - 50% Park & riders 50% full Commute

- Potential expansion to 80 stations
Congestion Reduction Pricing Pilot

- Metro, Local, State and Federal Partnership
- Convert HOV lanes on I-10 (El Monte Busway) and I-110 (Harbor Transitway) to High Occupancy Toll (HOT) Lanes
- Integrated Parking Pricing System in Downtown LA connecting both corridors
- Utilize US DOT Federal Grant to implement components
- Coordinate with 5 transit operators in corridors
  - Increase Bus, Rail, Commuter Rail services in corridors
- Complement parallel transit boulevards and coordinate Intelligent Transportation Systems in corridors
- Open Pilot in Late 2009
Sustainable Mobility-Planning Partnerships

30 Transit Oriented Developments (LEED Silver Minimum Policy)
Several in LEED-ND Pilot Areas
LEED-ND Low Carbon Neighborhoods Analysis

Potential Low-Carbon Neighborhoods
Hollywood-Westside Study Area

Los Angeles
Inset

25 minutes to work by transit

60 minutes to work by transit

Top 5 needs within 10 min walk
Top 5 needs within 10 min bike ride
Metro Sustainable Mobility Revenue Strategy

How we raise funds is as important as how we use them.

- **Our transportation system capacity is not optimized:**
  - Under-priced highway, road, & parking capacity over-used by solo-drivers
  - Inadequate street priority for Transit, Bicycle & Pedestrians leads to Underutilized capacity & lower transit fare-box return
  - Car-Oriented Land Use, Over-Parking & Streetscape decisions increase vehicle use and fuel consumption
  - Modest highway & parking pricing signals yield strong congestion relief results

- **Comprehensive Energy Efficiency, Smart Growth & Demand Management partnerships meet sustainable transportation objectives**
  - Additional 1/2 cent sales would fund up to $20 billion in transit
  - Regional Carbon Fee would fund up to $25 billion for low carbon transportation
Key European Mission Insights

• City Leadership and Initiation-transit part of mix
  – Integrated Land Use-Transportation-Energy-Economic Planning
  – Early actions since 1980s-Lower Transportation Carbon Footprint

• Transit Agencies Run Like Private Corporations
  – Transit rider experience from trip start to end is No1. Priority

• Regional Planning Challenges
  – Scale of city bigger role than region/and or state
  – Uncontrolled regional suburbanization
  – Challenge Maintaining Modal Splits with rising regional Car-Ownership Rates

• High Fuel Prices-Less Influence on Travel Behavior than in the US
  – Very High Levels of Infrastructure Investment

• Kyoto Protocol not been applied consistently
  – Regional Climate Action mixed applications
Challenge to Sustainability/Climate Action in Transportation Planning & Programming

GHG Domino Effect starts and ends with Land-Use and Roadway design:
- Approving land-use & roadway decisions that result in auto travel demand.
- Transportation responds with highways over transit, bicycle & ped programs
- Widening for cars over multi-modal, greener streets-move cars not people.
- Transportation techno fixes (Vehicle & Fuel) ignoring wider structural urban factors shaping travel behavior and resulting GHG.

• Funding priority levels & Federal Re-authorization needs to:
  - Reduce congestion, GHG emissions & energy consumption.
  - Prioritize Mode shifting, congestion pricing, smart growth & parking management
  - Feds spend $1.7 Billion annually on Light Rail vs. $40 Billion on Highways
Challenge to Sustainability/Climate Action in Transportation Planning & Programming

- Public Transportation sector needs to engage Carbon Fee/Trading policies more aggressively
  - AB 32 Draft Scoping Plan doesn’t understand Transit’s role

- State/Federal agencies need to coordinate forecast models (Energy, Travel, Air Quality, Economic)
  - Trip Generation Methodology and Environmental Mitigation relies too heavily on autos
  - Methodology needed for Smart Growth, Complete Streets, Bikes & GHG emissions

- Post AB 32, still no CEQA or EPA guidance on GHG emissions analysis opens CA agencies to legal challenges
  - Office of Planning & Research Developing guidelines
  - Next Federal Re-Authorization/Overhaul is key