



Smart Mobility FRAMEWORK

BIRDS DO IT
EVEN DOTS DO IT
BEES DO IT

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Caltrans Planning Horizons
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Caltrans Objectives for Smart Mobility*

- Increase Transportation Choices
- Enhance Community Quality
- Reduce Environmental Impacts
- Support System Preservation
- Increase System Efficiency

* From grant application submitted to U.S. EPA

Smart Mobility: Definition

Smart Mobility

moves

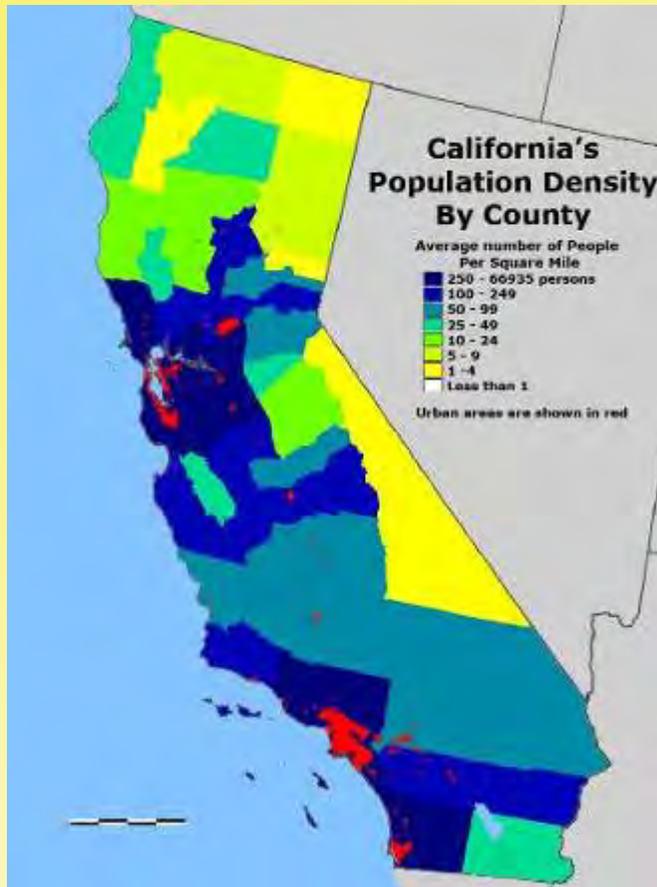
people and freight while enhancing
California's economic, environmental and
human resources

by emphasizing convenient and safe multi-
modal travel, speed suitability,
accessibility, management of the
circulation network, and efficient use of
land.

California places



Smart Mobility Challenge



- How can a single definition and a single set of smart mobility principles be made meaningful for application throughout the state?

Smart Mobility Framework: Key Concepts and Tools

- **Location Efficiency**
- **Place Types**

Places Type Pioneers

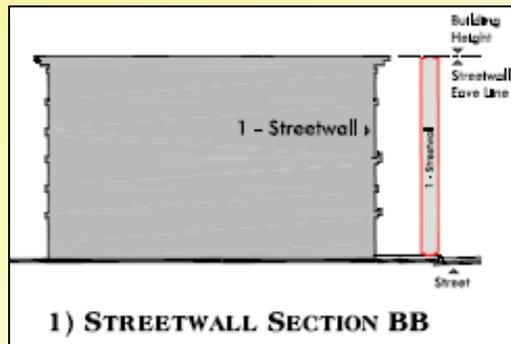
C-TOD



CSSers



Form Based Coders



Blueprint Planners



Location Efficiency Pioneers

Examining the Costs and Impacts of Housing and Transportation on Bay Area Residents, Their Neighborhoods, and the Environment

Bay Area Burden

ULI Urban Land Institute
Terwilliger Center for Workforce Housing

Center for Neighborhood Technology

Housing + Transportation Costs

ON AN AVERAGE WEEKDAY, the Bay Area transit system serves nearly 10 percent of the Bay Area workforce, ranking it among the most transit-reliant metropolitan areas in the country (Table 4).

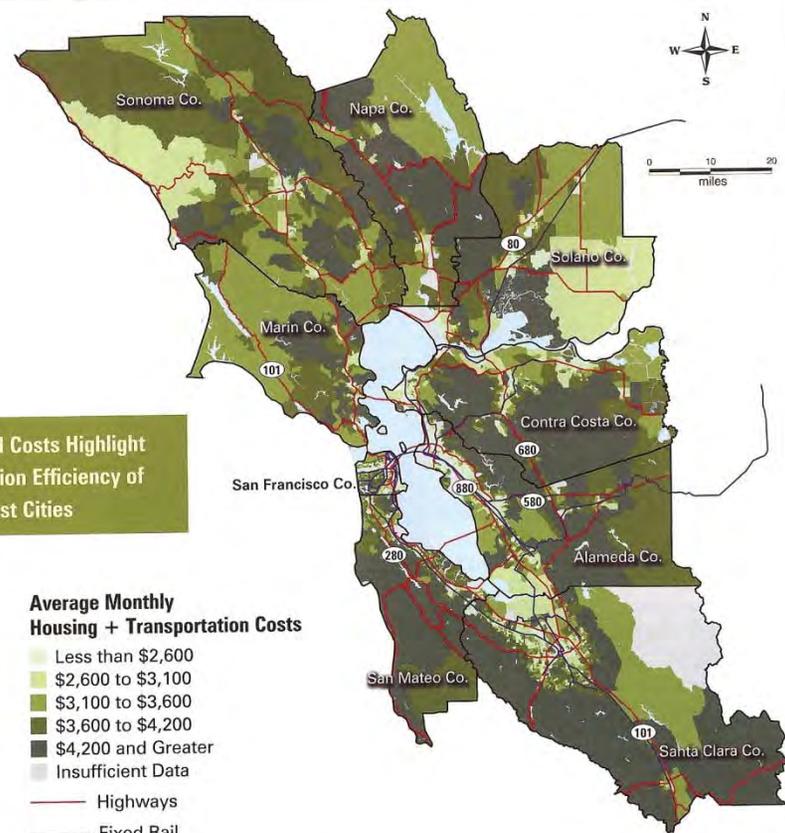
As with housing costs, the combined costs of housing plus transportation are lowest in the areas around the Bay where many of the region's jobs are located and public transit has the greatest reach. These areas provide the best opportunities for working households to save on their combined housing and transportation costs.

Bay Area households seeking more affordable housing in the outlying parts of Sonoma, Solano, Napa, and Contra Costa counties are burdened with higher transportation costs associated with these low-density, non-transit-accessible neighborhoods. These communities appear less affordable when the combined costs of housing and transportation are considered.

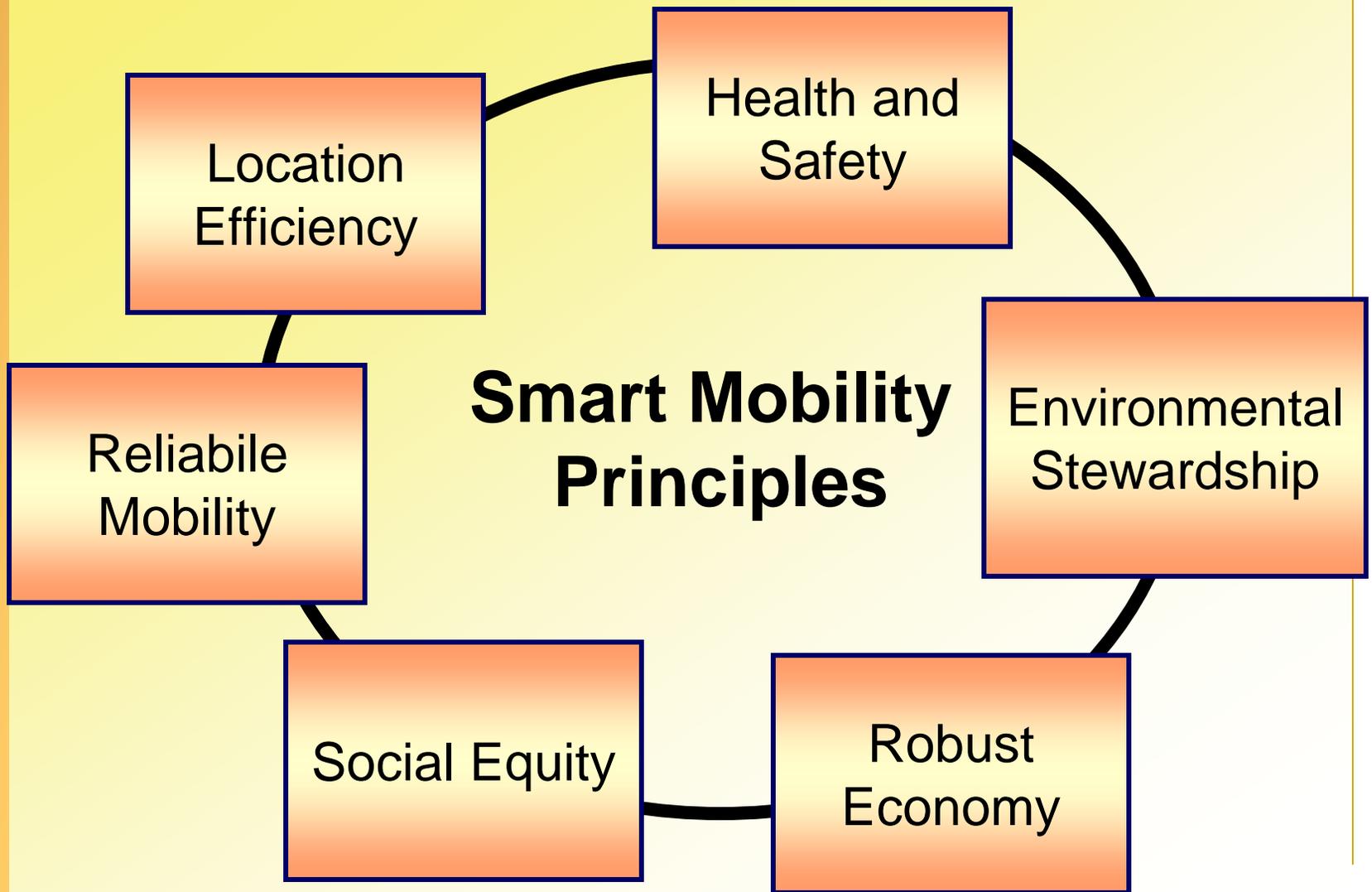
Combined Costs Highlight the Location Efficiency of the Largest Cities

Average Monthly Housing + Transportation Costs

- Less than \$2,600
- \$2,600 to \$3,100
- \$3,100 to \$3,600
- \$3,600 to \$4,200
- \$4,200 and Greater
- Insufficient Data
- Highways
- Fixed Rail



Smart Mobility Principles



Location Efficiency

The fit between the physical environment and the transportation system that can lead to Smart Mobility benefits.

Location efficiency is a function of two sets of key factors that contribute to Smart Mobility outcomes: **community design and regional accessibility**

Smart Mobility Principles



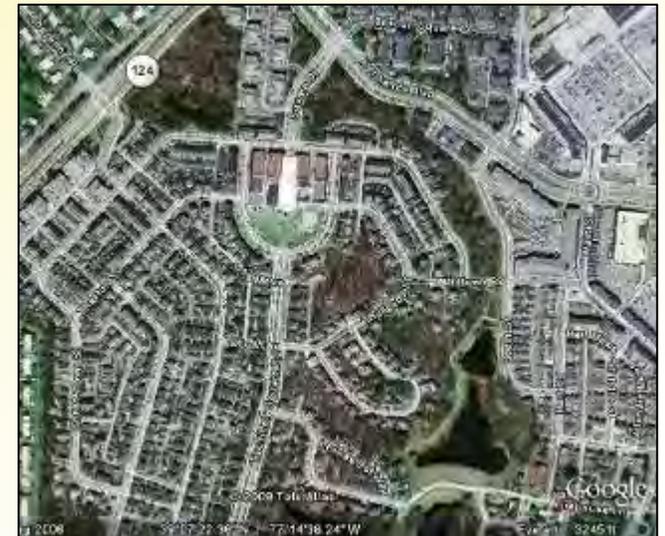
Location Efficiency

- **Community Design:** Characteristics of development use, form, and location that combine with the multimodal transportation system to support convenience, non-motorized travel, and efficient vehicle trips at the *neighborhood and area scale*.
- **Regional Accessibility:** Characteristics of development use, form, and location that combine with the multimodal transportation system to make destinations available through non-SOV travel and efficient vehicle trips at the *regional, interstate, and international scales*, and

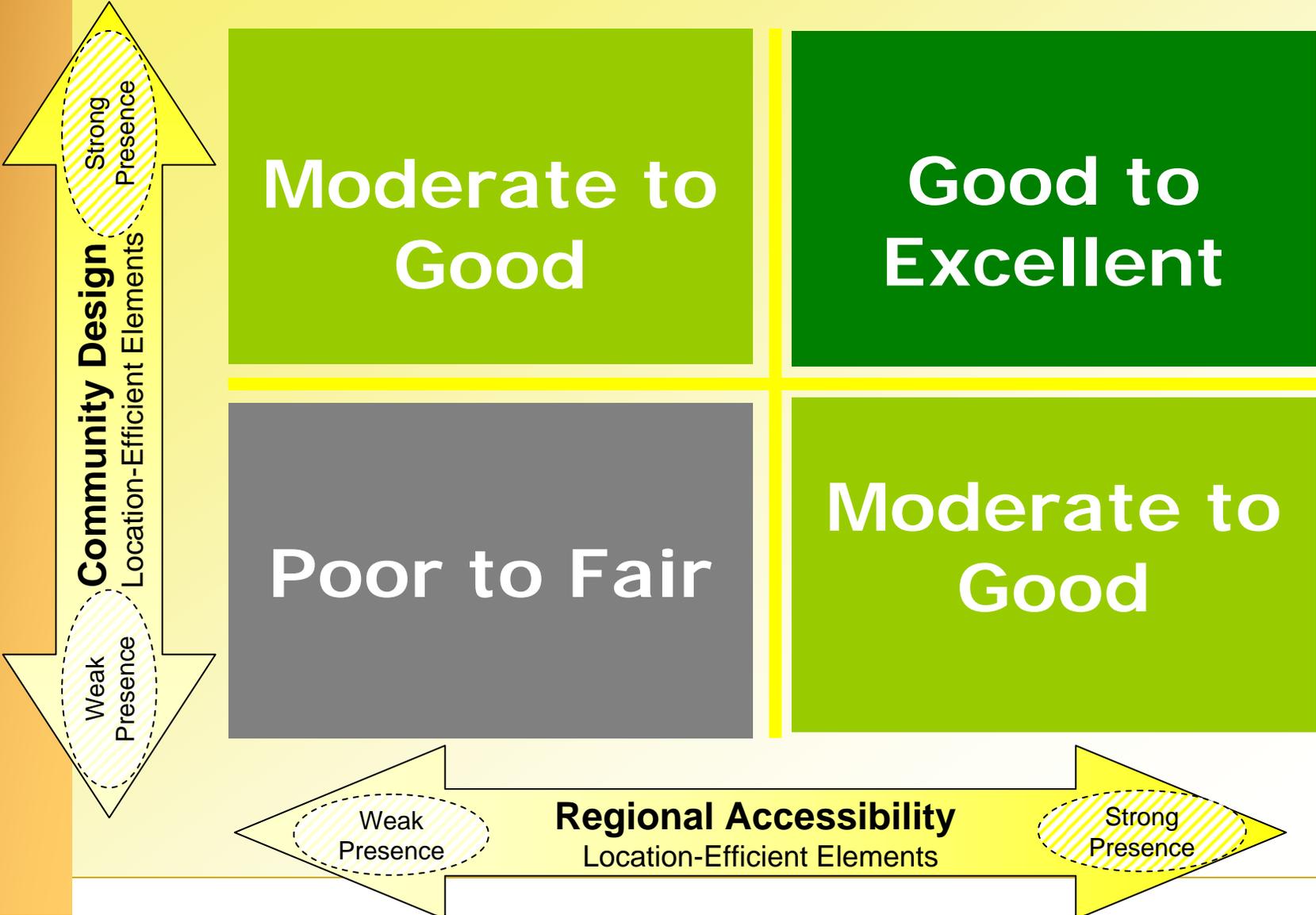
Regional Accessibility Elements



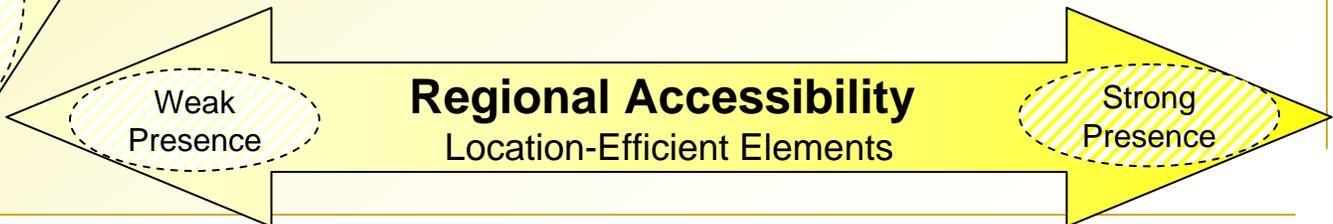
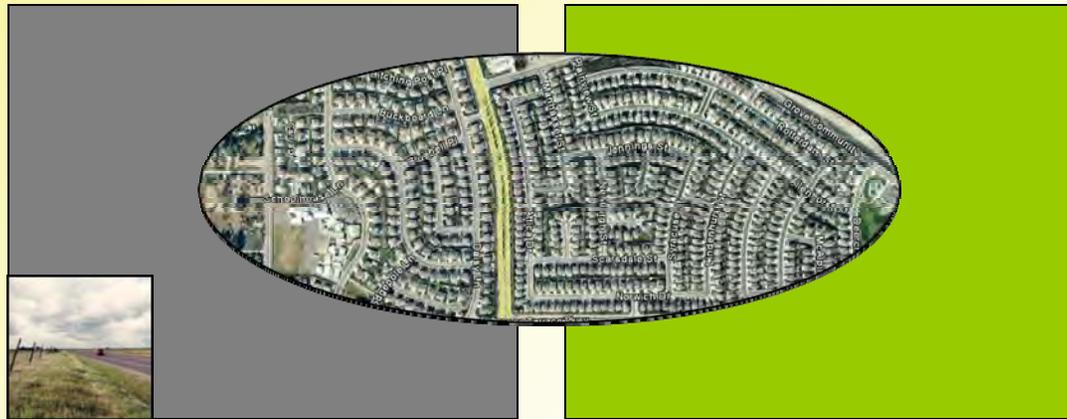
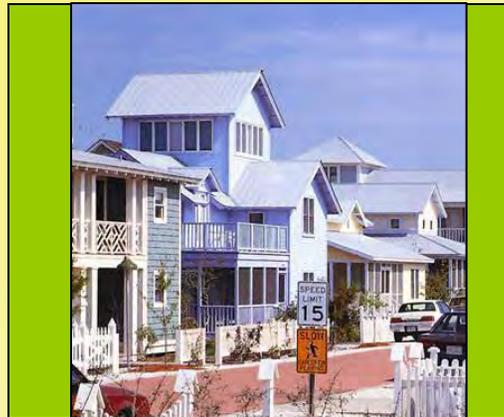
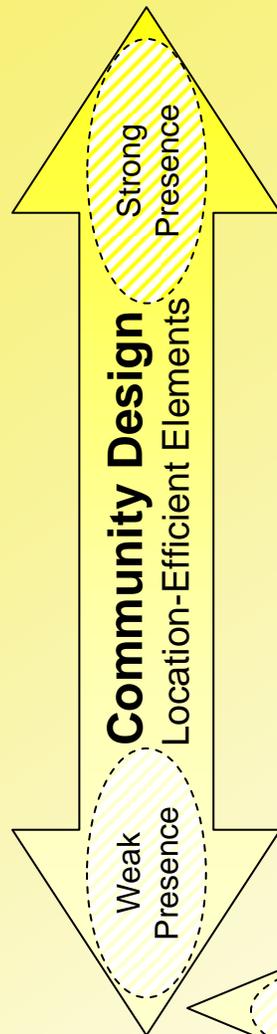
Location-Efficient Community Design Elements



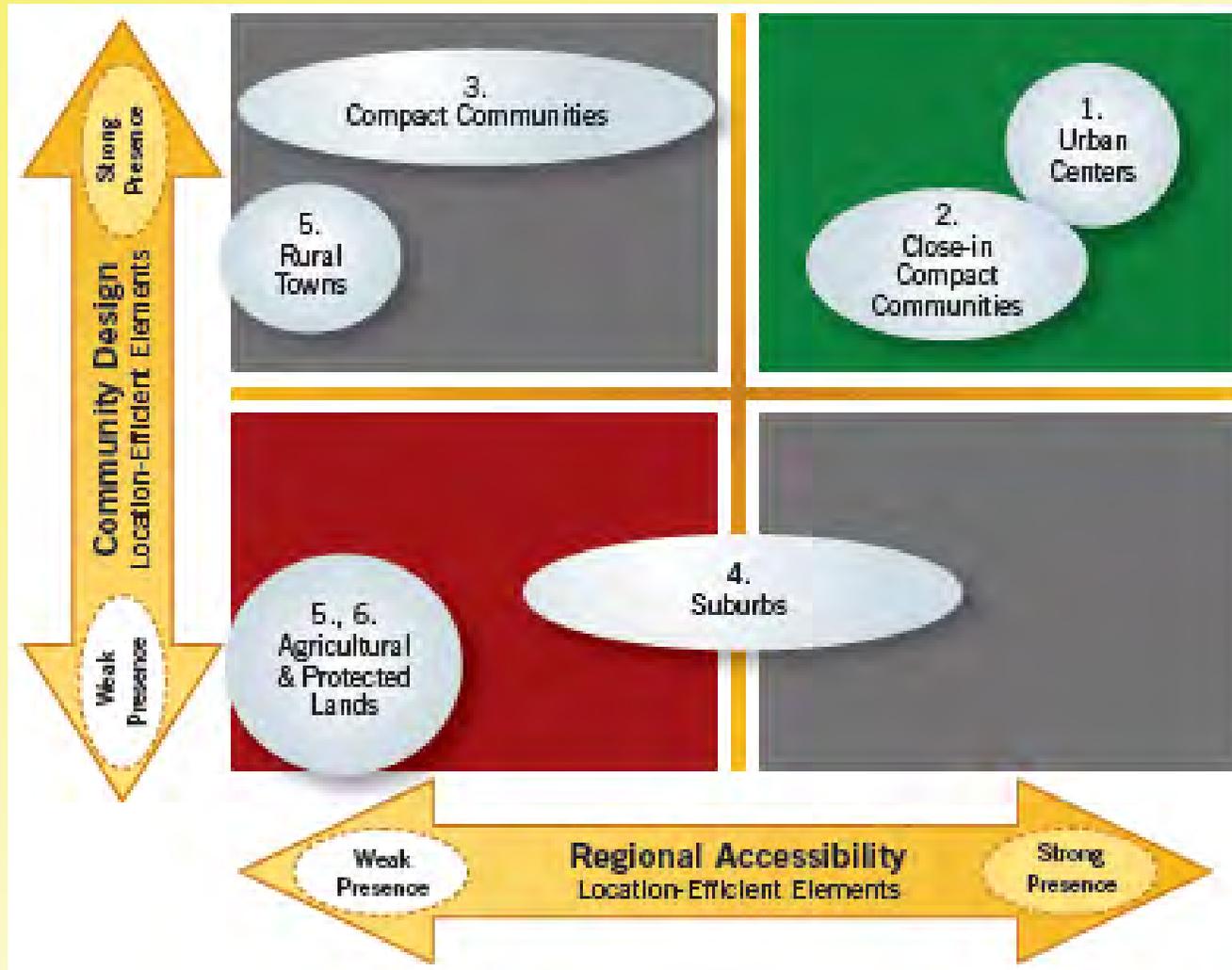
Opportunities for Benefits



Opportunity for Benefits



Smart Mobility Place Types



Place Types and Location Efficiency

	Location Efficiency Factors	
	Complete Community Design	Regional Accessibility
Urban Centers	Highest	High
Close In Compact	High	High
Compact	High	Moderate to low
Suburban	Variable	Variable
Rural / Ag	Variable	Low
Protected	Very Low	Variable
Special Use	Low	Variable

Place Type Guidance

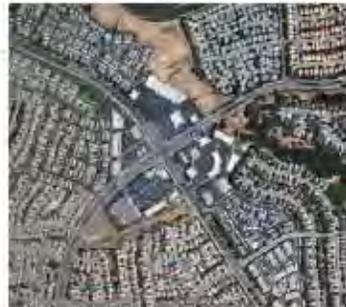
Suburban Communities

Smart Mobility Framework

Relative to the principle of location efficiency, suburban communities are characterized by weak presence of community design elements and variable presence of the regional accessibility elements that contribute to location efficiency. Suburban communities will be impacted by these factors for years to come. Achieving Smart Mobility benefits in suburban communities is difficult. These challenges point to the importance of minimizing the creation of new suburban communities, i.e. places ranking poorly relative to both of the Smart Mobility factors. This does not mean that lower-to-moderate density development should be prevented. Rather, all efforts should be made to direct the form of new development so that new compact communities or close-in compact communities are encouraged and incentivized while new suburban community characteristics are discouraged.

New lower-density development should be in the form of urban neighborhoods or compact communities that are characterized by complete community design and whenever possible by high regional accessibility. All levels of government should work together to minimize the creation of new suburban communities because they are characterized by few location efficiency factors, and the absence of these factors will work against efforts to control greenhouse gas emissions and maintain a healthy economy and economy. Instead, new development should be in the form of compact communities, whether close-in or in planned locations remote to urban centers.

The overall Smart Mobility strategy for suburban communities is to transition suburban centers and corridors to close-in compact centers and corridors. Higher density development with location-efficient community design elements would be concentrated in these transition areas. Larger suburban centers may transition to urban centers, which will create regional accessibility benefits for surrounding suburban communities. The implementation possibilities identified below reflect this emphasis on transition away from suburban centers and corridors. Section 3.4 further addresses place type transitions. Stewardship priorities underlie the Smart Mobility Framework for transitioning away from suburban



communities to compact communities and urban centers, with a focus on change in suburban centers and corridors.

In suburban communities, freeway and arterial widening projects, including HOV systems, should be undertaken only when they can be demonstrated to be unlikely to generate increased pressure on outlying lands for suburban expansion. For the same reason, new interchanges on existing freeways should be constructed only where they are tied directly to adopted local and regional plans for new location efficient growth as evidence by Smart Mobility performance measures.

A strong presence of location efficiency factors is difficult to achieve in suburban communities, which is the main reason for the Smart Mobility Framework's emphasis on transformation to other place types. Within suburban communities, activity is relatively concentrated in suburban centers, so suburban opportunities for location efficiency are typically best there.

The principle of Reliability supports an approach to street and intersection operations that focuses on providing predictable travel times through traffic and incident management. Health and Safety principles direct attention in particular to conditions on suburban arterials, many of which lack basic accommodation for bicyclists and pedestrians. Slower speeds and improved facilities will address paramount safety concerns as well as promoting public health outcomes.

Applying the Smart Mobility Framework to Place Types

Planning

Key Activities:

- Identify centers and corridors that can be transformed into more location-efficient places. Plan for them in terms of land use, urban design character, and transportation services. Given the high level of public investment and the lengthy time horizon required to stimulate these changes, locations should be prioritized to align with market potential and other community objectives.
- Identify near term opportunities to improve health and safety through active travel, safe routes to school programs, and traffic safety initiatives.

Transportation Projects and Programs

Likely priorities in Suburban Communities places:

- Investments that improve the operational efficiency of existing arterial and freeway corridors. (Reliable Mobility, Robust Economy)
- Projects that improve connectivity leading to shorter average trip lengths and increased non-auto mode share. (Location Efficiency, Environmental Stewardship, Health and Safety)
- Investments in "complete streets" and safe routes to school measures that improve conditions for walking and bicycling. (Health and Safety, Social Equity, Location Efficiency)

- Access management and speed management on the arterial system. (Reliable Mobility, Health and Safety)
- Where there are concentrated employment centers, commute transit service and rideshare promotion. (Social Equity, Location Efficiency, Environmental Stewardship)

Development and Conservation Projects and Programs

Likely priorities in Suburban Communities:

- Where high capacity transit stops and stations are located along high capacity transit corridors between cities, transit oriented development with managed parking and car and bike share at stations. (Reliable Mobility, Robust Economy, Environmental Stewardship)
- Strategic redevelopment of commercial corridors and dedicated use areas such as large shopping malls and business parks, in order to incorporate Location Efficiency factors. (Location Efficiency)
- Strong presence of community design factors for all new construction. (Environmental Stewardship, Location Efficiency)

Suburban Communities

Place Type Guidance

Rural and Agricultural Lands

Smart Mobility Framework

Rural settlements will continue to depend on a high level of automobile use because origins and destinations are dispersed and congestion is a relatively minor concern. A Smart Mobility approach should focus on:

In rural towns:

- Maintaining and creating walkable rural towns with streets that are operated and designed for speeds suitable for their context and safety for all users.
- Centrally locating community-serving uses (public and private) in rural towns.
- Using a flexible approach to design and operations of state highways operating as Main Streets, as described in Caltrans' Main Streets: Flexibility in Design and Operations (www.dot.ca.gov/hq/oppd/context/mainstreets2006.pdf)

In agricultural lands:

- Safety for all modes on rural roads.
- Limiting significant SOV capacity expansions (including new freeway interchanges) to avoid inducing unplanned growth.
- Preventing circulation network patterns and/or subdivision patterns that will lead to suburbanization, i.e., not increasing network connectivity in agricultural areas except when required for goods movement.
- Adequate freight capacity for movement of inputs and products.
- In areas with strong tourism components in the local economy, weekend and holiday season visitor-oriented transportation services focused on customer satisfaction and compatibility with area character.

In active farming, vineyard, and grazing areas, the emphasis of Smart Mobility strategies will be on providing access for workers, suppliers, and delivery of products, and on minimizing direct and indirect adverse impacts of transportation facilities on the agricultural economy. These adverse impacts can include fragmentation of agricultural



lands into patches that threaten viable operations, and growth inducing effects that can result in new development in inappropriate locations and forms. Lands in agricultural production are often in a relatively complex pattern with rural settlements.

Agricultural lands and protected lands (discussed below) offer urban form benefits, helping to shape the development footprints of both urban areas and rural towns. In some cases, roads can have a positive function as separators between agricultural and urban properties.

Location efficiency works differently in rural towns than in rural settlements and agricultural lands. In towns, location efficiency derives from a strong presence of Community Design factors. Central location of public facilities such as schools, hospitals, libraries, and post offices in rural towns is an important Regional Accessibility element. In rural settlements, location efficiency is achieved when infrastructure investments are appropriately scaled to the overall modest level of travel demand.

Stewardship has multiple focuses in Rural and Agricultural places. First is the protection of rural character and agricultural resources through concentrating development in towns and compact communities. Stewardship of the rural roads system through asset management is another component. Support for concentrating activities in walkable rural towns and maintaining the rural character of agricultural settlements aims to prevent impacts to natural resources that can be caused by dispersed activities, rural subdivisions, and inappropriate road network connectivity.

Applying the Smart Mobility Framework to Place Types

Planning

Key activities:

- Map areas that are to retain rural identity for the long term.
- Mapping the boundaries between rural towns, surrounding settlements, and agricultural lands.
- Create cooperative planning processes including local governments, Caltrans, and other stakeholders when rural town main streets are part of the State Highway System.
- Designate lands for long-term agricultural use and distinguish them from rural towns and settled areas with different mobility needs.
- Identify transition areas between urban and suburban places and agricultural/rural ones.
- Identify key routes for goods movement.

Transportation Projects and Programs

Likely priorities in rural and agricultural places:

- Outside of towns, safety improvements to walking and bicycling facilities on rural roads. (Health and Safety)
- Inside towns, walking and bicycling facilities focused on connectivity and comfort. (Location Efficiency, Health and Safety)
- Demand-responsive transit and inter-city transit connecting to major destinations such as hospitals and community colleges. (Social Equity, Reliable Mobility)
- If there are concentrated work destinations within commute distance, park and ride lots associated with freeway interchanges and regional transit services. (Environmental Stewardship)
- High-quality demand-responsive transit and intercity transit services. (Social Equity, Reliable Mobility)

- Network connectivity enhancements within towns. (Health and Safety, Reliable Mobility)

- Visitor-oriented transportation services, particularly in locations with very strong weekend or holiday peak demand. (Robust Economy, Reliable Mobility)
- Network connectivity including required access to inter-regional network needed for movement of agricultural goods and inputs. (Robust Economy)
- Effective speed management at the transition from highway to rural town and on main streets in rural towns accompanied by reduced speeds to maintain and create walkable rural towns in designated locations. (Health and Safety, Location Efficiency, Reliable Mobility)

Development and Conservation Projects and Programs

Likely priorities in rural and agricultural lands:

- Public facilities located in, or for larger facilities such as schools, immediately adjoining rural towns. (Location Efficiency, Reliable Mobility)
- Full range of needed services and public facilities in rural towns. (Location Efficiency)
- Housing in rural towns meeting the needs of permanent and seasonal rural workers. (Social Equity, Location Efficiency)
- Where it does not presently exist, establishment of regulatory and taxation framework that supports long-term agricultural uses consistent with planning. (Environmental Stewardship)
- Appropriate design character for all development in this place type. (Environmental Stewardship)
- Outside of towns, open space preservation for natural resource value, with connectivity to natural and open space systems. (Environmental Stewardship)

Rural and Agricultural Lands

Place Type Transitions

Using place types to aid strategic decision-making about projects and programs that will **support smart mobility as cities and towns change over time.**

Place Type Transitions: Implications for Investments

Anchored Places. Investment



decisions is on increasing the presence of location efficiency factors that heighten Smart Mobility benefits.

Transitional Places. Investment



emphasis is on supporting evolution to different place type with greater potential for Smart Mobility benefits.

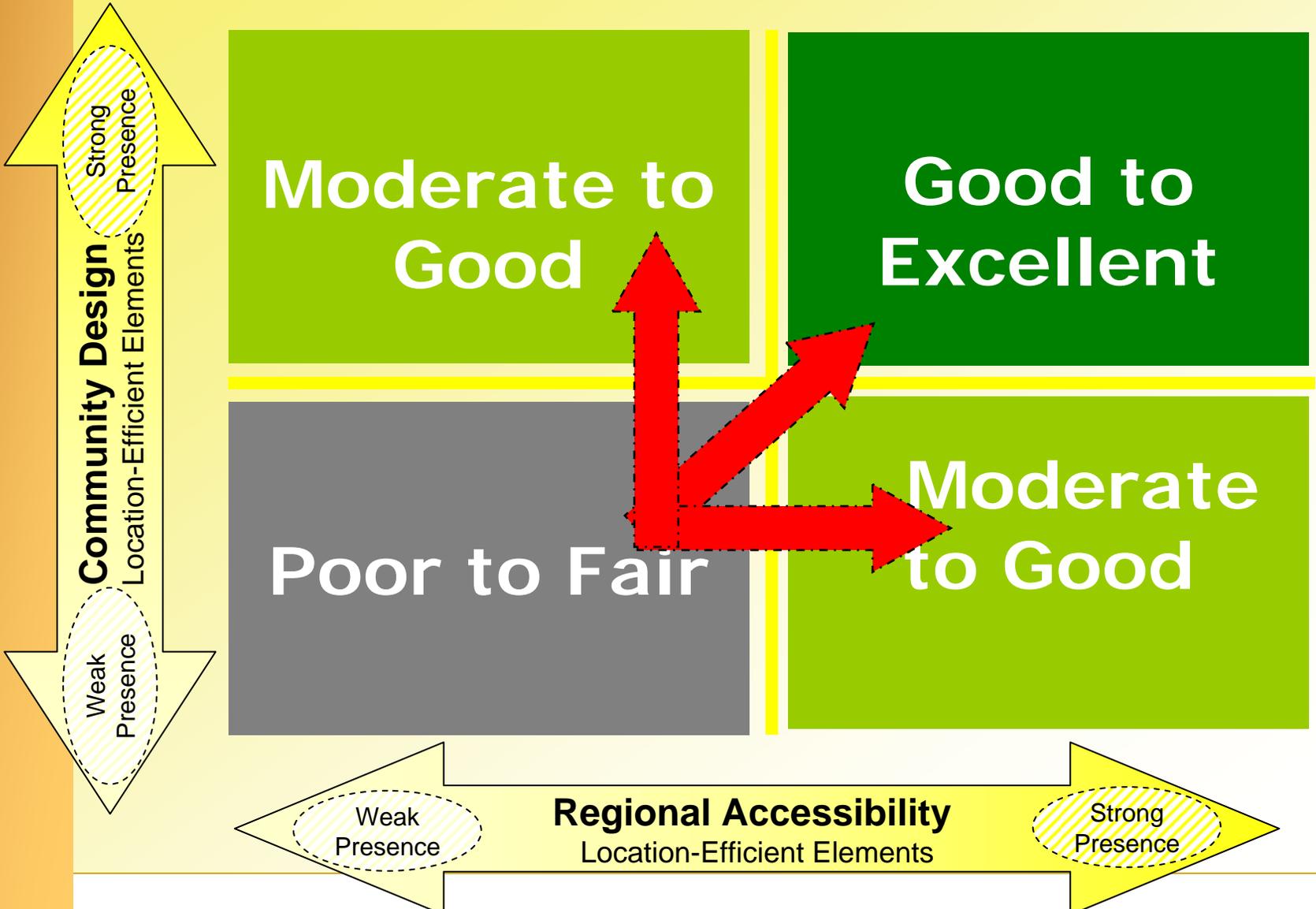
Place Type Transition

Place Type	SM Emphasis	Ultimate Place Type
Urban Centers		Urban Center
Close-in Compact Communities	 or 	Close-in compact communities or Urban Centers
Compact Communities		Compact Communities

Place Type Transition



Opportunities for Benefits

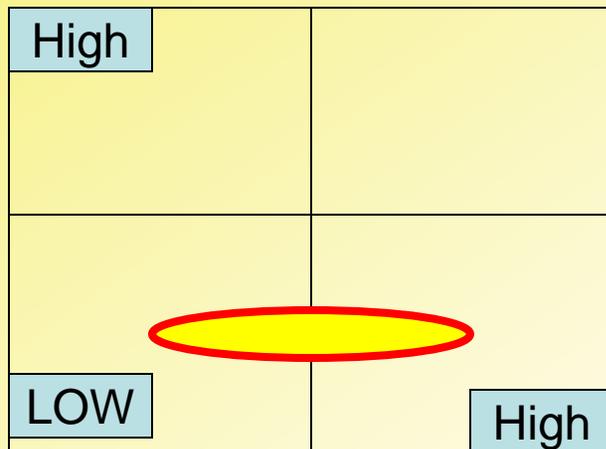


Place Type Guidance

For Each Place Type

- Smart Mobility Framework
- Key Activities
 - Planning
 - Transportation Projects & Programs
 - Development & Conservation Projects & Programs
- Place Type Transitions

Example: Suburban Communities



■ Framework

- Minimize creation of new places ranking low on both factors
- Transition suburban centers and corridors to close-in compact centers and corridors
- Create benefits for surrounding suburban areas

Example: Guidance for Suburban Communities

Planning: Key Activities

- Identify centers and corridors that can be transformed into more location-efficient places.
- Prioritize locations to align with market potential and other community objectives.
- Identify near term opportunities to improve health and safety
- Identify opportunities to improve reliability through operational improvements

Example: Guidance for Suburban Communities

Likely transportation priorities

- Improving operational efficiency
- Improving connectivity
- “Complete streets” and safe routes to school
- Access management and speed management
- Commute transit service and rideshare promotion.

Example: Guidance for Suburban Communities

Likely land use development priorities:

- Transit oriented development along high capacity transit corridors
- Strategic redevelopment of commercial corridors and dedicated use areas
- Complete community design elements for all new construction

Place Types in the Handbook

- Introduction
- Place Types and Location Efficiency
- Place Type Transitions
- Matching the Place Types to Real Places
- Guidance for Place Types
- Applying Performance Measures to Place Types





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