

The Economics of Land Use



Final Report

Gold Line Corridor Case Studies

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1. INTRODUCTION AND BACKGROUND

Introduction

As a component of the *Market and Community Services Analysis*, EPS conducted research on existing rail corridors in the western and central U.S. to identify case studies with applicability to the Gold Line Corridor. The purpose of this research was to assist corridor property owners, developers, and economic development officials with identifying lessons learned with application to economic development growth opportunities and specifically transit oriented development and addressing specific market, infrastructure, and policy issues or impediments.

This report is organized into six chapters, outlined below, with a summary of key findings at the end of each chapter.

- 1. Introduction and Background** – A review of national trends in commuter rail system expansion and related transit oriented real estate factors.
- 2. Collaborative Corridor Efforts** – A summary of two approaches to transit corridor or system wide collaboration.
- 3. Industrial TOD** – A summary of the approaches and experiences of other cities in integrating passenger rail with industrial development, and more broadly on balancing demand for residential and other commercial development with industrial job preservation and attraction.
- 4. Town Center and Main Street Stations** – A profile of four station areas that were created as new Town Centers or a part of a historic downtown or main street.
- 5. Health Care and Transit** – A profile of two station areas where health care services are linked to the transit station.
- 6. Education and Transit** – A profile of two station areas where educational facilities or services are located and linked through transit.

Commuter Rail and TOD

The fact that Gold Line will be built as a commuter rail rather than a light rail line reflects some differences in the nature of the Corridor compared to the light rail corridors. Similarly, commuter rail technology functions differently than light rail which can affect the amount and type of TOD that can be expected to occur in the future. EPS' research on the commuter rail lines built in the U.S. in the last 20 years provides common themes present in these corridors. This section provides an overview of the history of commuter rail in the U.S. and a summary of recent lines built over the past 20 years. It also provides a discussion of the physical, transit operations, and market factors that affect commuter rail TOD in contrast to light rail TOD. The unique characteristics and opportunities associated with the Gold Line are then discussed.

Commuter rail differs from light rail or heavy rail (e.g. San Francisco's BART or Washington D.C.'s Metro system) in terms of its characteristics and markets served; similarly, TOD opportunities associated with commuter rail also have some important distinctions. Commuter

rail is most often passenger transit service utilizing diesel or electric propelled trains on existing track and/or new track within an existing freight rail corridor. It generally provides frequent peak-hour service and work-trip oriented service of longer distances, typically 20 miles or more, with longer station spacing of two to five miles. By contrast, light rail generally provides more frequent service both during the peak hour and throughout the day and evening. Light rail station spacing is closer, generally less than two miles, and even down to blocks in dense urban settings.

Until recently, commuter rail systems were only found in the largest metropolitan areas including Boston, Chicago, Montreal, New York, Philadelphia, San Francisco, and Toronto. These systems are made up of multiple commuter rail lines connecting outlying suburbs to the CBD and also tying into a finer grain light rail, heavy rail, or subway system within the central city. The numbers of destinations that are accessible from these older systems are therefore much larger than some of the newer systems.

In the last 20 or so years, commuter rail lines have been built in smaller urban markets including Albuquerque, Austin, Dallas, Los Angeles, Miami, Minneapolis, Salt Lake City, Portland, and Seattle, as shown in **Table 1**. A number of these lines (e.g., Austin and Albuquerque) are single corridors rather than components of a larger system and typically have approximately 10,000 average daily riders or less. However, like Denver, other commuter rail lines have been built as components of a more multifaceted regional rail system including other modes including Seattle, Portland, Minneapolis, Salt Lake City, and Dallas. Ridership numbers on these lines are generally higher and have the potential to increase as the system develops and provides greater regional accessibility options.

**Table 1
Commuter Rail Systems in the United States**

Rank by Ridership	System	Major Cities Served	Avg. Weekday Ridership	Route Miles	Lines	Stations	Date Opened
1	Long Island Railroad	New York	334,100	321	11	124	1836
4	New Jersey Transit Rail	New York / Philadelphia	302,000	398	11	164	1983
3	Metro-North Railroad	New York	298,700	385	6	122	1983
2	Metra	Chicago	292,600	488	11	241	1984
6	SEPTA Regional Rail	Philadelphia	130,900	280	13	153	1983
5	MBTA Commuter Rail	Boston	124,400	368	13	127	1973
7	Caltrain	San Francisco / San Jose	50,800	77	1	32	1987
8	Metrolink	Los Angeles	40,800	388	7	55	1992
9	MARC Train	Baltimore / Washington D.C.	34,100	187	3	43	1984
10	Virginia Railway Express	Washington D.C.	15,900	90	2	18	1992
11	Tri-Rail	Miami	14,800	71	1	18	1987
16	UTA FrontRunner	Salt Lake City	14,700	88	1	16	2008
13	Sounder Commuter Rail	Seattle / Tacoma	11,900	80	2	9	2000
12	NICTD South Shore Line	Chicago	11,600	90	1	20	1903
14	A-Train	Denton	8,600	21	1	6	2011
15	Trinity Railway Express	Dallas / Fort Worth	8,000	34	1	10	1996
17	NCTD Coaster	San Diego	5,200	41	1	8	1995
19	Capital Corridor	San Jose/Oakland/Sacramento	4,300	168	1	15	1991
20	Altamont Commuter Express	San Jose	4,100	86	1	10	1998
18	New Mexico Rail Runner Express	Albuquerque	3,500	97	1	13	2006
21	Northstar Line	Minneapolis	2,500	40	1	6	2009
23	Capital MetroRail	Austin	2,400	32	1	9	2010
22	Shore Line East	New Haven	2,200	59	1	13	1990
24	Westside Express Service	Beaverton	2,000	15	1	5	2010
25	Music City Star	Nashville	900	32	1	6	2006

Source: APTA, Economic & Planning Systems

H:\143020-Gold Corridor Market Readiness Study\Dat a\143020-Commuter Rail Ridership.xls\Ranking

Commuter rail TOD opportunities are different than those associated with light rail or heavy rail systems due to its more limited scope, both in terms of frequency of service as well as the portion of the region that can easily be accessed by transit. Both factors limit the accessibility premiums that translate to increases in real estate market demand and higher land values. The nature of existing land uses in the commuter-freight rail corridor can also be less compatible with adjacent TOD. Sound levels associated with diesel locomotives and horns are louder, there are often larger transit parking fields, and freight rail movements generate impacts less compatible with residential and office-based employment development. As a result, TOD uses are often situated farther away from the station in order to mitigate these impacts.

The existing land development pattern in commuter rail corridors is also often not compatible with TOD, as it can include manufacturing and distribution uses that require direct rail service as well as other heavy industrial uses. Despite these limitations, there remains a great deal of interest in TOD at commuter station locations, particularly on these newer lines where land use and development patterns are less fully built out.

Even in some of the country's largest light and heavy rail systems (e.g., WMATA in Washington, D.C. and BART in San Francisco), it has taken 15 to 20 years from systems opening for any significant TOD to materialize. The scale and land uses in commuter rail TOD are different than light and heavy rail TOD. Since commuter rail often serves more suburban areas, the land use

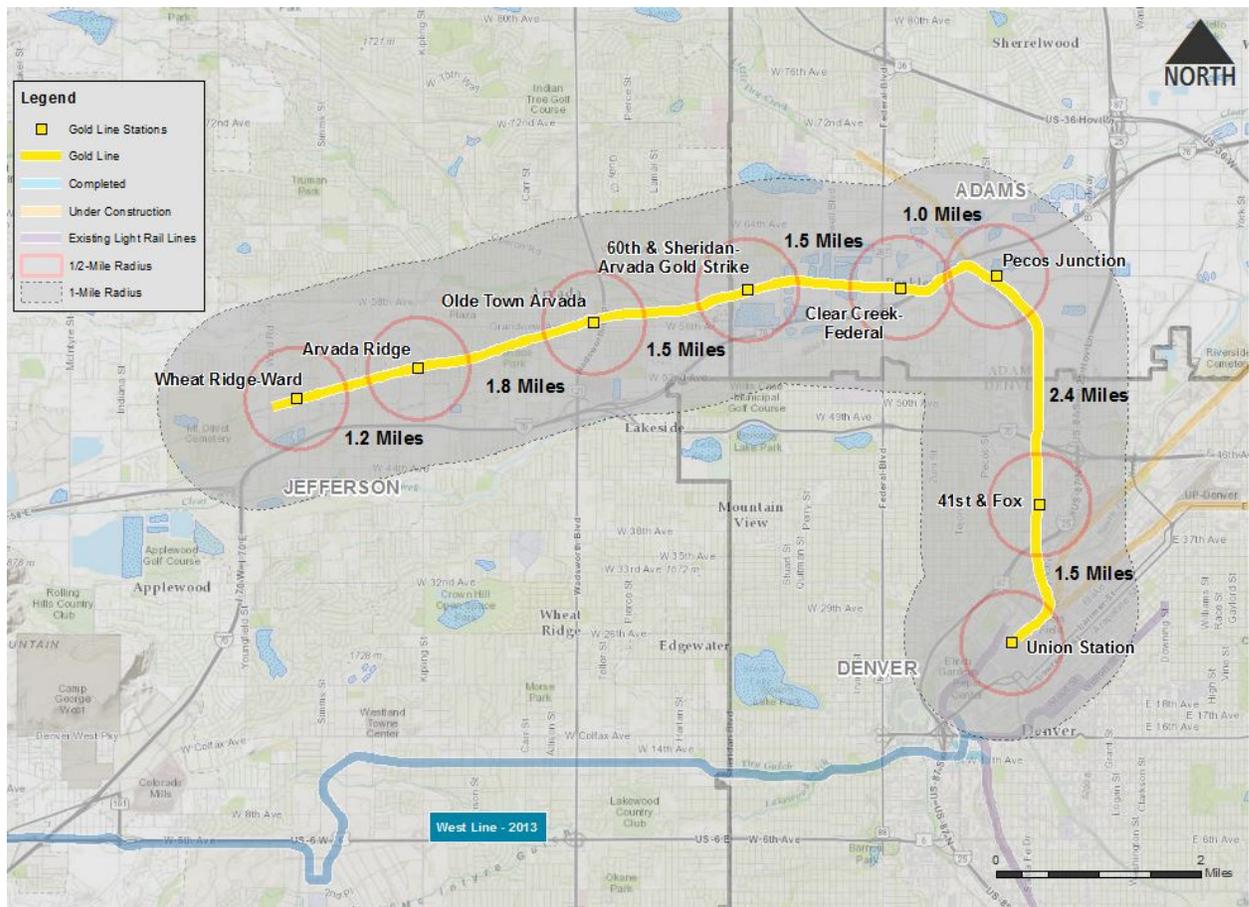
mix appears to be, so far, more weighted to residential development, unless a station already is located in a major employment area. Commercial development tends to be lower intensity as the retail and services businesses that serve surrounding residents do not necessarily depend on the transit service for business.

However, major demographic and economic shifts that have occurred in the past 5 to 10 years suggest that the demand for TOD real estate will continue to increase, enabling development to accelerate. These include the Millennial Generation’s preference of renting over owning and lower rates of car ownership; baby boomers seeking downsized low maintenance housing and less desire or ability to drive as they age; rising fuel and construction costs over the long term; and less availability of mortgage financing and personal savings towards housing down payments among younger generations affected by the Great Recession.

FasTracks Commuter Rail

The FasTracks commuter rail lines have some of the challenges and opportunities for TOD identified above. However the design and operating characteristics of the new lines are intended to be more “light rail like” and will likely mitigate some of these limitations. For example, the station spacing on the 11-mile Gold ranges from 1.0 to 2.4 miles which is more akin to a light rail line as shown in **Figure 1**.

Figure 1
Gold Line Corridor



The Gold Line is also expected to operate using light rail service frequencies with headways of 7 to 15 minutes on a 24-hour schedule. Further, the line is fully electric with overhead catenary similar to RTD's LRT lines eliminating much of the noise impacts of diesel engines. It will also have level boarding platforms eliminating stairs, a system that is superior to existing LRT stations.

The Gold Line does have a number of the limitations outlined above typically associated with commuter rail built within existing industrial rail corridors. The Gold Line for the most part runs adjacent to active freight lines and often double track freight lines. Associated with the freight line, there are rail spurs and rail related industrial and shipping uses along the Corridor. There are also limited crossing locations making property access to the station difficult or circuitous from properties on the opposite side of the tracks.

Commuter Rail TOD Considerations

Multiple market, economic, and physical factors that are unique to each urban environment and each rail corridor influence the type of development that occurs, whether it is mixed use TOD or more conventional employment development. It is important to consider the impacts of each factor when comparing TOD and TOD programs across different systems; what has been successful in one market may not be as successful or even feasible in another. Broad observations and experiences from other commuter rail lines and the larger transit systems in which they operate are outlined below for consideration along with the case studies presented in the chapters that follow.

Size and Geography of the Metro Area – The population and employment growth within a metro area determines the overall demand for housing, employment, and commercial space. Larger and faster growing metro areas like Dallas and Seattle have greater demand for housing and commercial development than smaller or slower growing metro areas. Larger cities also tend to have more diversity in housing, partly due to greater demographic diversity and partly due to other market factors such as land costs and physical geographic constraints. High land costs and a constrained land supply will result in higher development densities. The Gold Line has relatively low densities and land costs and at a number of stations also has an abundant supply of undeveloped land. The appropriate level of density at a TOD will therefore be relative to the density of the area surrounding it and will vary by station location and context.

Land Use Policy – State, regional, and local land use planning also affects the demand for TOD and high density mixed use development. Specifically, policies that restrict the amount of land available for development result in greater demand for the land that is available, resulting in higher land values. Higher land values in turn require higher density development in order to be economically feasible. In the case of the Portland metro area, there are strong state and regional level land use and transportation planning and growth management laws that favor high density development along transit corridors over lower density greenfield development. The DRCOG region does have some regional land use control through the urban growth boundary and transportation funding that prioritizes infill and transit development.

Automobile Congestion – In cities with high levels of roadway congestion like Dallas and Seattle, the market places a premium on TOD locations for housing and employment development. When commuting by automobile affects worker productivity and quality of life, employers and households may choose locations with direct transit access to avoid the

frustration of traffic jams and reduce travel times. The rising cost of fuel is also likely to increase the demand for housing and employment in TOD locations. The Gold Line Corridor in particular does not have the same levels of congestion present in these other markets.

Quality and Extent of Transit Service – Having a transit system that provides frequent reliable service, a good rider experience, and relatively complete regional access is directly related to market demand for real estate development at stations. In mature transit markets with a fully developed transit system, one can live without an automobile because of the level of transit access and frequency of service. Like Denver, all of the cities studied including Dallas, Salt Lake City, Portland, Seattle, and Minneapolis are in the process of developing more robust rail transit systems. As these systems expand, the market demand for TOD real estate will grow.

Development Timing – More mature rail systems (e.g., San Francisco and Washington, D.C.) did not start seeing significant TOD until after they were operating for 10 to 20 or more years. In Portland, Dallas, and Seattle, TOD is taking place much quicker in response to proactive local and regional land use and transportation planning and policy that is favoring and encouraging high density development along transit corridors. In addition, fundamental demographic and economic shifts lead many to expect that the demand for transit oriented real estate will increase. These factors include rising energy and transportation costs, higher preferences for renting and for mixed use urban environments among young people, and demand for smaller low maintenance housing accessible to services by aging baby boomers.

2. COLLABORATIVE CORRIDOR EFFORTS

Gold Line Corridor Context

In accordance with the expansion of FasTracks, DRCOG and the Denver region's jurisdictions have begun to develop and expand TOD resources and investment decisions. All of the Gold Line Corridor communities are already steps to make their station areas more transit-oriented. While all of the cities have a general plan in place for TOD at their stations, collaboration is needed not only within a city, but also across municipal boundaries to spur TOD activity along the corridor. Collaboration is essential to ensure that the Gold Line Corridor can become a "complete corridor" and provide residents access to community services and amenities. Cities and regions throughout the country have faced similar coordination obstacles during the implementation of TOD investments and providing access to community services, and they have learned new ideas in the process. Using a collaborative process, a corridor-wide TOD strategy can offer a forum where a common vision and set of goals can be fleshed out by the full set of TOD planning participants, allowing for more efficient coordination.

In an effort to better understand potential methods to address TOD coordination, two national examples were identified with very different approaches to coordination, the Central Corridor Funders Collaborative in Minneapolis-Saint Paul, MN, and the Central Maryland Transportation Alliance in Baltimore, MD.

Central Corridor Funders Collaborative

In 2010, the Federal Transit Administration (FTA) awarded Minneapolis-Saint Paul \$475.0 million in Federal New Starts matching grants to construct a \$950.0 million 11-mile light rail line connecting



downtown Minneapolis and downtown Saint Paul, known as the Central Corridor. Planning for a Central Corridor connection began as far back as 2003, and in 2006 the newly-elected mayor of Saint Paul asked three local foundations, the Saint Paul Foundation, the McKnight Foundation, and the John S. and James L. Knight Foundation, to support the planning process for the new corridor. After successfully funding the initial planning phases, the three foundations determined that there was a critical need for ongoing coordination to support equitable development along the corridor and drafted a Memorandum of Understanding (MOU), establishing the Central Corridor Funders Collaborative. This MOU outlined the role of the foundations moving forward and added nine other local and national foundations to the group. The decision to include grant-funding foundations, at the exclusion of government and non-profit entities, was intentional to avoid conflicts of interest and remain focused on the mission of providing grant-funded assistance to benefit the corridor. The Central Corridor Funders Collaborative continues to serve as a national model for successful TOD investment coordination, as well as the facilitation of stakeholder collaboration.

Program and Process

The mission of the Central Corridor Funders Collaborative is to create and implement corridor-wide strategies aimed at ensuring the adjoining neighborhoods, residents, and businesses broadly share in the benefits of public and private investment in the Central Corridor Light Rail Line. The Collaborative accomplishes this mission by providing technical assistance and investment capital from its Catalyst Fund toward building shared solutions, learning opportunities, and implementation actions. Investments are focused on four corridor issues: affordable housing, strong local economy/workforce development, transit-oriented places/placemaking, and coordination and collaboration. In this way, the Funders Collaborative coordinates organizational policy both internally through its foundation partnership and externally through the provision of technical assistance and grant dollars to various stakeholder groups in an effort to get local organizations to think strategically about critical issues on the corridor.

Internal coordination of the foundation partnerships is primarily executed through the MOU and vision outlined at the establishment of the Collaborative. The Collaborative successfully pools its financial resources and coordinates its funding decisions by targeting investments to stakeholder groups that have successfully developed a formal strategy and identified actions or innovative ideas with a demonstrated need for funding.

External coordination is executed through the facilitation of stakeholder working groups. Working groups are formed around critical corridor issues and membership of these working groups includes a diverse mix of government, quasi-government, non-profit, and community organizations. The Collaborative currently has 10 working groups. The five initial groups include Affordable Housing, Business Development, Contractor and Workforce Inclusion, Investment Framework, and Job Access. In addition to these Collaborative working groups, a handful of additional corridor organizations also receive facilitation support from the Funders Collaborative, including the District Councils Collaborative of Saint Paul and Minneapolis, and the Energy Innovation Corridor.

One of the initial working groups, the Investment Framework working group was specifically formed by the Collaborative to encourage greater public investment coordination among local jurisdictions along the corridor. Membership of this group includes two counties, two cities, the Metropolitan Council (MPO), and the state housing finance agency. Working together, the Investment Framework working group drafted a corridor implementation strategy in 2010. This document provides a comprehensive summary of the vision of the 37 local community-based plans along the corridor and the public investments necessary to fulfill this vision. The strategy is intended to clarify strategies for funding partners and provide informational support to individual jurisdictions to direct public dollars to best attract desirable development. Identified public investments go beyond the line itself and include affordable housing subsidies, improved pedestrian connections from surrounding neighborhoods, streetscape enhancements, and other improvements. In total, the strategy identified a total of \$1.0 to \$1.5 billion of necessary corridor investments, excluding private development. Upon this realization, the framework and working group were forced to identify priority investments for the corridor.

Outcomes

The Funders Collaborative was specifically formed to coordinate foundational investment, as well as facilitate collaboration among corridor stakeholder organizations. Serving as a corridor coordinator for stakeholders is not part of its charge. At one time the corridor set out to establish a coordinating organization to be guided by a consensus-based community compact, similar to the Red Line Community Compact along the proposed Red Line in Central Maryland. However, the Central Corridor was unable to achieve similar corridor consensus and was ultimately unsuccessful in establishing such an organization.

The Funders Collaborative has enjoyed tremendous success in its mission of coordinating internal investment among its foundational partners and facilitating collaboration among various external stakeholders. However, achievements in ongoing policy coordination, in which various organizations continually make collective decisions, has been more mixed. For example, as a one-time guiding document with jurisdictional collaboration, the *Central Corridor Implementation Strategy* generated by the Investment Framework working group is a demonstrated success, particularly bringing to light the magnitude of costs associated with the local community plans and forcing these communities to think in terms of prioritization. However, little ongoing coordination among the working group has occurred since the strategic effort, as individual jurisdictions have decided to prioritize identified investments internally rather than in a coordinated fashion with neighboring communities. Similarly, the Business Development working group was widely successful in easing a highly contentious issue among the business community in regards to business impacts during construction of the transit line. This working group worked successfully across public and private sectors to develop a consensus-based program for construction mitigation. However, once construction of the transit line was completed, the ongoing efforts of this working group are not anticipated to continue.

Despite these facts, the Funders Collaborative continues to establish and support the stakeholder working groups, as well as fund identified actions requiring financial resources. The Collaborative holds an annual conference to present the accomplishments of the working groups and monitor the results of its Catalyst Fund investments. The Collaborative also continues to fund media sources to provide new TOD materials and information to educate the public. The demonstrated success of the Funders Collaborative continues to serve as a national model of TOD investment coordination and has directly resulted in the successful establishment of two similar organizations across the country, including Mile High Connects in Denver and the Great Communities Collaborative in San Francisco.

Central Maryland Transportation Alliance



The greater Washington DC-Baltimore region has experienced tremendous economic growth over the past half-century, most of which has occurred in the region's rapidly expanding outlying communities.

This growth has created tremendous strain on the region's transportation and highway systems, resulting in high levels of traffic congestion and mobility obstacles. While the Washington DC Metro region, including portions of southern Maryland, has successfully responded to regional transportation issues through the expansion of its Metro system and the development of several national models of transit-oriented development (TOD), the Baltimore Metro region (Central Maryland) has lagged behind in many of these areas. In effort to think strategically about transportation solutions in the region, the Central Maryland Transportation Alliance was formed in 2007. This alliance is composed of a diverse coalition of 34 corporate and civic leaders with the agenda of improving and expanding transportation options in the Baltimore Region. Alliance membership includes:

- Five regional counties
- Maryland Department of Transportation (MDOT)
- Maryland Transit Administration (MTA)
- Maryland Chamber of Commerce
- Baltimore Metropolitan Council
- Various non-profit and transportation advocacy groups

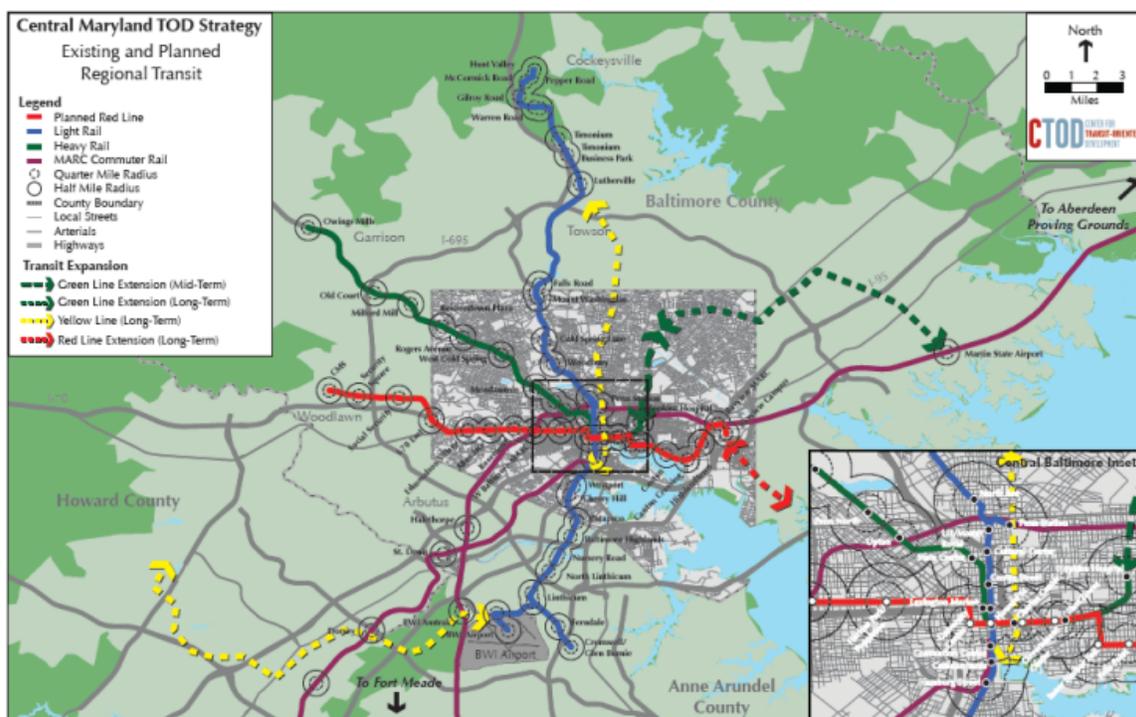
In addition to facilitating a Regional TOD Strategic Plan and working with MDOT on its state TOD Designation Program, the Transportation Alliance provides a clearinghouse for regional participants through its regional TOD Steering Committee.

Program and Process

As the Washington DC Metro area began to benefit from the growth of TOD in its system, Baltimore started to look to TOD as a potential solution to its own regional transportation issues. In 2008, the Transportation Alliance held a regional TOD Summit to discuss the potential for TOD across Central Maryland communities. Ultimately, program participants determined that a number of government and non-profit organizations were working to promote TOD throughout the region; however, these agencies were not working together. With scarce available resources, participants decided that greater regional coordination was required to leverage TOD efforts and maximize investments. Thus, the Transportation Alliance commissioned a regional TOD Strategic Plan in an effort to coordinate regional decision-making and think more strategically about TOD throughout Central Maryland. The plan prioritized station locations (current and future) for TOD investment, outlined potential policy/investment actions by station type, and identified an action plan for regional participants. Altogether, a total of 20 stations were identified as a high priority for investment. However, upon completion, the region quickly realized that resources were not sufficient to target the magnitude of identified priorities and a more narrowed approach was likely required.

Simultaneous to this effort, MDOT desired to implement a state-designated TOD program, providing financial incentives to private developers to construct new TOD at specific station locations throughout the state. Potential incentives included state land contribution, eligibility for tax increment financing (TIF), and TOD tax credits. MDOT took the Strategic Plan’s priority recommendations into consideration in its selection process and ultimately selected five Central Maryland stations for TOD Designation. Two of these stations were identified as high priority stations in the Strategic Plan, two were identified as regionally important stations, and one was identified as a non-priority. Thus, while political pressure ultimately drove state-level decisions for several station designations, the Transportation Alliance’s strategic planning process was successful in promoting its regional stations as investment priorities to the state, and the region was able to move forward with a refined set of priority stations in coordination with state objectives.

Figure 2
Existing and Planned Regional Transit; Central Maryland TOD Strategy; CTOD 2009



Outcomes

As a result of the regional planning process, the Transportation Alliance was able to gain regional “buy-in” from public agencies at the local, regional, and state level. While MDOT did not ultimately follow the recommendations of the Strategic Plan in its state designations, decision-makers were influenced by the planning process and Central Maryland received five station designations, including two identified as high priorities in the strategic planning process. The regional TOD Steering Committee established by the Transportation Alliance provides a high profile platform for ongoing TOD knowledge transfer, as well as the opportunity for better coordination with state-level decisions moving forward.

Successful regional TOD collaboration was not the only achievement of the Transportation Alliance's efforts. After an unsuccessful application for the Federal Sustainable Communities Regional Planning Grant submitted by the Baltimore Metropolitan Council in 2010, the Transportation Alliance realized that the regional collateral developed during the strategic planning process provided a superior platform to advocate for regional livability. Thus, the Transportation Alliance and strategic planning group took an active role in the development of the 2011 application and the region was successfully awarded \$3.5 million for future livability planning, with program dollars specifically earmarked for TOD.

To enhance state and regional policy coordination moving forward, the Transportation Alliance established a regional TOD Steering Committee co-chaired by the Transportation Alliance and the MDOT Department of Real Estate. The TOD Steering Committee meets quarterly to discuss new TOD projects in the region, provide progress updates on TOD action items identified in the TOD Strategic Plan, and evaluate projects in which state-owned land is involved in joint development. The ongoing committee serves as an educational platform and TOD clearinghouse for local jurisdictions planning for TOD in their communities, as well as a legislative platform for specific policies identified by the committee. Recent committee efforts have focused on amending state legislation for the increased use of TIF funds, state tax credits, and Federal TIFIA funding in support of TOD. Finally, the TOD Steering Committee works to promote new transportation revenue sources to expand the regional transit system and enhance the opportunity for TOD throughout Central Maryland.

Gold Line Corridor Findings

1. *Where successful coordination has been achieved, a specific group was established with responsibility of monitoring progress of the identified goals and objectives.*

The continual interaction of the group will ensure the collaboration continues. Success in the collaborative efforts was more easily found in the initial stages of the process and with initial projects. Once the initial focus or objectives were achieved, the collaboration efforts sometimes struggled due to lack of next steps, political issues, lack of resources, and other reasons. Including decision-makers, whether that is elected officials or city/county department heads, was needed and they should be a part of the group that is created.

2. *In many instances, the concept of promoting TOD has proved to be less effective as a "rallying cry" among interested stakeholders than focusing on the creation of better transit-oriented places or communities, which can allow for greater contribution by more peripheral stakeholders.*

Competition for development and jobs make collaboration around TOD difficult, especially since each jurisdiction typically has varying development goals and objectives. Focusing on collaborating on creating transit-oriented places shifts the focus towards improvements (roads, paths) and services (recreation, community, health) that are more typically provided by municipalities and/or non-profit entities. The case studies also demonstrate that limited time and resources often drive policy prioritization, which means focusing on issues that are not already prioritized by the individual cities is an effective way to aid the corridor. Lastly, identifying a collective pot of resources or an approach to funding early on in the process will result in more effective policy decisions.

3. INDUSTRIAL TOD

Gold Corridor Context

The expansion of the RTD rail system, FasTracks, is occurring on existing freight rail rights of way on the Gold, East, Northwest, and North Metro lines. As a result, numerous transit stations and associated development opportunities on the transit system are located on adjacent industrial land. Industrial property is a critical economic component to any city or region, providing good paying jobs and key goods distribution and service networks. The strategic location of industrial sites, large parcel ownership patterns, and transportation access surrounding transit stations in industrial locations can create enticing prospects to convert these uses into higher value real estate, including residential, institutional, office, and retail. Thus, the evolution, preservation, or conversion of industrial land is an important consideration facing the communities along the Gold Line Corridor and the surrounding region. EPS prepared case studies from three other cities to examine how they have approached the preservation, attraction, or evolution of industrial development along transit corridors. The key issues that were evaluated are summarized below.

- Can industrial development work in conjunction with other TOD efforts? Should these decisions be made at a station level or in reference to the entire system?
- What types of jobs are attracted to industrial space and industrial districts, and are these compatible with transit-oriented development?
- What land use and economic development policies and strategies have been used to either preserve or expand industrial and other living wage employment opportunities?

This section examines the following three case studies to provide examples of how other cities have approached these issues, and to illuminate some of the challenges and opportunities of industrial TODs: Chicago Green TIME Zone, Chicago-Southland; Cornfields Arroyo Specific Plan, Los Angeles; and Eastern Neighborhoods Plan, San Francisco.

Chicago Green TIME Zone, Chicago-Southland



Beginning in the 19th century, the smaller suburbs of Chicago evolved to combine residential commuter communities and industrial hubs around the extensive rail and highway transportation networks that converged in the region. As the United States grew into a manufacturing power, these industrial hubs provided many steady blue collar jobs, and residential communities expanded in conjunction with their success. Over the last 60 years, however, the erosion of the region's industrial base and the transformation to a more service-based economy led to a pattern of decline and disinvestment in many of these communities. In 2004, the 42-member municipalities of the South Suburban Mayors and Managers Association (SSMMA), along with the Center for Neighborhood Technology (CNT) and several other non-profit organizations, embarked on a six-year planning effort to revitalize the area. This culminated in the 2010 Chicago Southland Green TIME Zone plan.

Program and Process

The planning effort began by identifying key assets common to the communities. These characteristics are also common to many neighborhoods and first-ring suburbs in older American cities, giving this plan broader relevance. However, they are particularly prevalent in the Southland, and fundamentally informed the initial thinking about the correct planning approach. The most important assets identified include:

- **Exceptional transportation assets** – Freight and transit lines, intermodal terminals, and expressways all intersect in this area.
- **Location efficiency** – Household transportation savings and fuel savings for shippers and distributors.
- **Underutilized land** – 4,000 acres of vacant or underutilized land for mixed use and cargo-oriented development.
- **International logistics access** – Canadian National and Union Pacific railroads connect to Canada, Mexico and numerous deep water ports.
- **Green supply chain** – 450 companies and 10,000 workers ready to shift into production of green and other emerging technologies.
- **Workforce readiness** – Over 66 percent of residents in the core area of the Green TIME Zone hold a high school or community college diploma.

The Plan addresses two fundamental challenges with one cohesive strategy: abandoned industrial and redeveloping land and a jobs-housing mismatch. Rather than completely reimagining the area, the favored approach called for restoring the vast tracts of abandoned brownfields. The surrounding rail and intermodal freight infrastructure could reinvigorate economic activity and provide many low and mid-skilled jobs closer to where people live.

Outcomes

The resulting Green TIME Zone plan (December 2010) relies on three interconnected approaches to guide these redevelopment efforts:

- **TRANSIT**-oriented development (to shape livable communities);
- Cargo-oriented development (to capitalize on **INTERMODAL** freight movements); and
- Green **MANUFACTURING** (to engage emerging and sustainable economic trends).

Finally, each of these approaches is grounded in a commitment to protect the ENVIRONMENT.

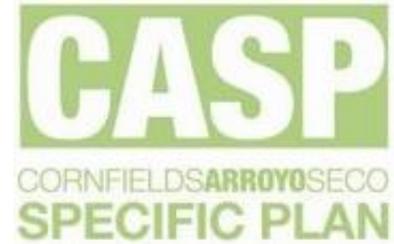
The Green TIME Zone plan's goals include attracting 13,400 jobs, \$2.3 billion in new income, and \$232 million in state and local tax revenue to the area over the next 10 years. Ongoing efforts to achieve these goals include seeking assistance and investment from various Federal, state, regional, and local agencies. Specific areas of emphasis include brownfield clean up and environmental remediation, transportation planning, economic development, housing stabilization and livable neighborhood grants, and workforce development initiatives.

Figure 3
Green TIME Zone Strategic Overview



Cornfields Arroyo Seco Specific Plan, Los Angeles

Approximately one mile northeast of downtown Los Angeles, California, the three neighborhoods of Lincoln Heights, Chinatown, and Cypress Park have been the subject of this six-year planning effort. The Cornfields Arroyo Specific Plan (CASP) defines policies and strategies to transform an industrial area into a more livable, mixed use area while still protecting jobs and attracting green and “clean-tech” businesses. CASP originated because the city recognized that several adjacent planning efforts were likely to impact this area as the neighborhood gained in popularity. Other than the few affordable housing projects built in the area prior to the planning effort, much of the land in the CASP plan was zoned for industrial use.



- The **LA Metro Gold Line** was completed in 2003, connecting Pasadena to East Los Angeles via downtown. The CASP area includes two Gold Line stations and is adjacent to a third.
- In 2006 the 32-acre **Los Angeles State Historic Park** opened on a former industrial site and rail station. The park forms part of the western boundary of the CASP study area.
- After a decade of work, the **Los Angeles River Revitalization Master Plan** was completed in 2007, providing a blueprint for transforming 32 miles of concrete-lined river into green public spaces better connected to adjacent neighborhoods, including those in the CASP area.

These three projects redefined the area and resulted in increased residential development pressure. The city decided to act proactively and avoid a multitude of residential spot zoning requests in the area. Starting in 2007, CASP planners began working with the community to ensure this development could be absorbed while upholding the city’s long-standing policy of “supporting industrial and employment generating land uses.”

Program and Process

From the beginning of the planning effort, city staff recognized that this area would need to integrate this substantial new residential development while somehow managing to preserve opportunities for existing and future businesses to thrive and grow in the area, keeping jobs within the city. Finding ways for these uses to mix either vertically or horizontally was a key component of the plan. The city recognized that the nature of industrial uses is changing (especially in the urban core) and that this increasingly makes them more compatible with residential and other mixed uses. Other economic development efforts in Los Angeles were promoting the idea of a “Clean Tech” corridor, and this work further influenced the thinking about how to successfully target industries and jobs within the CASP area.

Outcomes

The CASP plan was approved in 2013, and is projected to attract more than 25,000 new residents over the next 25 years. The plan addresses this expected increase in residential uses by creating four new zoning districts, each of which emphasizes residential, commercial, and industrial uses to varying degrees:

- **Urban Village** zones have a more residential focus - up to 90 percent residential is allowed. These zones are generally located in close proximity to the park. A 3.0 base floor area ratio (FAR) limit is in place unless affordable housing is included.
- **Urban Innovation** zones target the preservation and growth of jobs in the area. Up to 100 percent industrial uses are allowed, but the zoning will accommodate up to 15 percent residential, and between 10 and 15 percent commercial, with a range of 3.0 – 4.0 FAR.
- **Urban Center** zones are generally areas near or around the three Metro stops. They are more regionally focused with an emphasis on jobs and commercial uses, and allow more density with up to a 6.0 FAR.

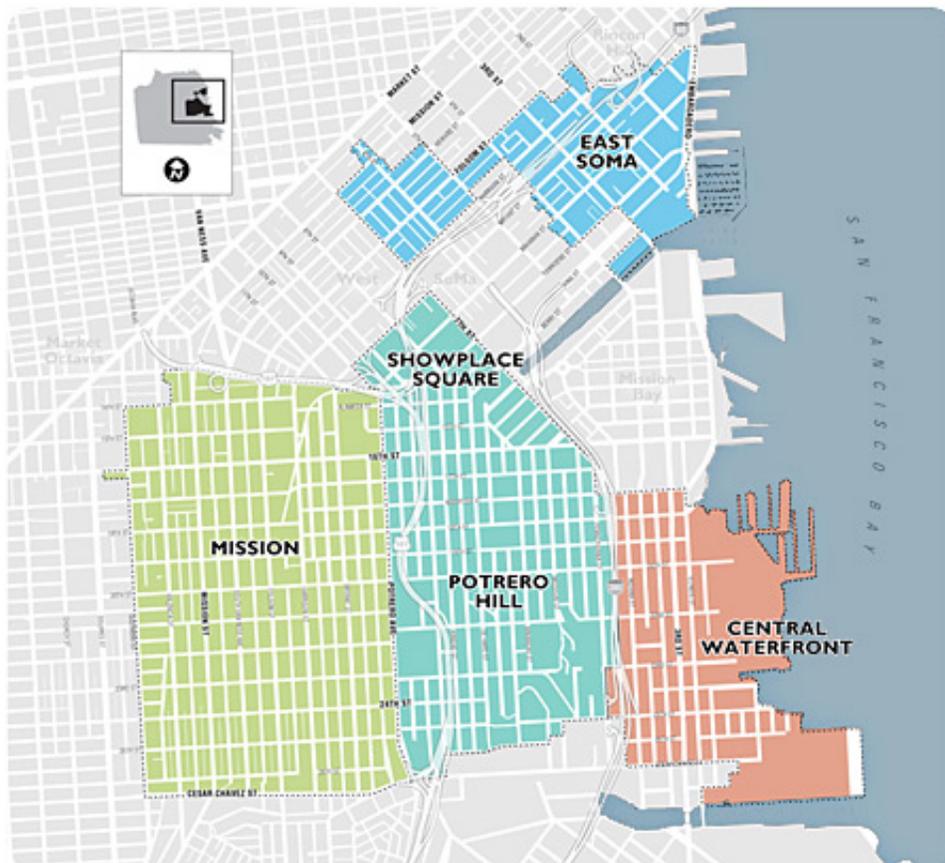
The plan also created a new land use designation called “Hybrid Industrial.” The goal of the Hybrid Industrial designation is to regulate the activities of businesses that can successfully coexist with the residential uses in the area. However, rather than defining those business by use category, the city decided to utilize performance standards that regulate things like air and noise pollution, maintenance and delivery schedules, and storage and vibration standards. These performance standards are based heavily on existing city ordinances, so as to be as consistent as possible with other regulations developers and businesses might encounter elsewhere in the city. To allow more flexibility in the future, the city chose not to limit actual use types because many industries might eventually become clean(er) and fit well within the urban fabric of this type of neighborhood.

Eastern Neighborhoods Plan, San Francisco

Over the last 15 years, the Eastern neighborhoods of San Francisco (The Mission, Central Waterfront, East South of Market (SOMA), and Potrero Hill/Showplace Square) have seen an increasing number of land use conflicts as the nature of the area changes. Much of San Francisco's industrial land is found in these neighborhoods, but as development expanded from downtown, residential and office uses started vying with industrial uses for space. Based on its 2002 study of industrial lands in the San Francisco area, the city recognized the value of protecting the Production, Distribution, and Repair (PDR) employment typically found in these neighborhoods and set about creating a plan to balance job preservation by accommodating the burgeoning residential and office growth. While there was not a specific transit catalyst in this plan, the opening of Phase 1 of the MUNI T Third line in 2007 connected the length of the eastern portion of the Central Waterfront neighborhood into the MUNI system. The construction of Phase 2 (present-2017, opening to the public in 2019) adds further transit orientation in East SOMA.

EASTERN NEIGHBORHOODS Community Planning

Figure 4
Eastern Neighborhoods Map



Source: www.sf-planning.org

Program and Process

The plans focus on three main strategies. First, area plans were developed for each neighborhood to direct the long-term vision and development, specifically for issues like housing needs, job protection, transportation, and community amenities. Second, the city created zoning to balance the needs of newer residential and office development with the existing PDR uses, and had to anticipate how development might evolve in the future. Four main zoning categories were developed:

- **Residential Zones:** to maintain and protect areas currently zoned to residential.
- **PDR Zones:** Intended to protect existing and future PDR uses by prohibiting new residential uses and limiting new office, retail, and institutional uses. This zoning allows existing non-PDR uses to stay in place.
- **Mixed-use Zones:** There are multiple variations of this zoning type, designed to match the differing needs of each neighborhood, emphasizing commercial, residential-retail mixed-use, or PDR uses as appropriate.
- **Special Use Districts:** These two districts will promote “emerging new technology and medical related businesses.”

Finally, a special focus on public amenities and affordable housing constituted an important aspect of each plan. Recognizing that increased residential and office uses will intensify the need for community facilities like transit, bike and pedestrian access, and parks and open space, each plan provides both funding and implementation strategies to ensure these needs are met within each community.

Outcomes

The *Eastern Neighborhoods Community Plan*, consisting of the four neighborhood area plans and the new zoning designations and map were adopted in January of 2009. The city, with input from the Citizens Advisory Committee, is now working on the more detailed aspects of how to implement the various features of the *Community Plan*. Challenges include:

- Preserving the PRD employment base within the Eastern Neighborhoods;
- Encouraging low cost innovation districts; and
- Encouraging “micro-industrial” uses.

The city is also exploring strategies such as zoning amendments and incentives for increasing utilization rates (employment density) of larger buildings that often have a high proportion of unused or rarely used space, allowing them to more easily share the space with smaller companies. For newer buildings, the city also designed the Small Enterprise Workspace (SEW) zoning for a “single building that is comprised of discrete workspace units which are independently accessed from building common areas.”

While the Planning Department staff indicated that the plans have been more successful in preserving PDR jobs in the area, they feel they have been less successful thus far at encouraging low cost innovation districts. Several new strategies implemented or under consideration include: reduced impact fees on PDR uses; allowing accessory retail square footage for certain PDR uses; and the Innovative Industries Special Use District, which is intended to provide affordable office

space to small firms and organizations that are “engaged in innovative activities, incubator businesses, and microenterprises.” The city also examined the possibility of an inclusionary office/PDR ordinance—similar to an Inclusionary Housing Ordinance (IHO)—but found that the numbers did not quite work. Finally, they are working on tax breaks that would help lower the cost of buying buildings within the PDR zones in order to encourage new and emerging businesses to locate there.

San Francisco is justifiably renowned for its start-up culture, but this strength goes beyond the famous technology companies. There is also great momentum in “micro-industrial” uses such as food and beverage production (Vodka distillation and artisanal granola, for example) and design/ prototyping/ small-batch manufacturing units (like Timbaktu). These types of businesses are especially important in the context of the Eastern Neighborhoods (and industrial TODs more generally) because their smaller scale allows them to be less land and space intensive, have higher employment density, and thus have better synergy with transit. These businesses are good candidates to take advantage of previously-mentioned strategies like shared building spaces, Small Enterprise Workspace zoning, and accessory retail outlets.

Gold Line Corridor Findings

1. Jobs and industrial development strategies along rail transit corridors should consider traditional assets and be linked to a region's economic development strategy.

The ability of a transit corridor to attract jobs and economic development is a function of its region's competitiveness for the targeted industries and the physical and locational assets present at a selected station on site. The plans profiled in this report show cities leveraging or repositioning their existing economic assets to attract jobs rather than targeting completely new industries or markets. The Chicago Green Time Zone plan aligns its economic development strategy with the strong surface transportation network comprised of highways and freight rail that made that region a manufacturing and distribution center, and the manufacturing-oriented labor force present along the corridor.

2. In some station areas it is appropriate to limit the types of industrial uses allowed. More flexibility can be allowed between stations, or outside the quarter mile station area walking distance.

The Chicago Green Time Zone plan recognizes that industrial development and operations requiring large sites, and truck, and freight rail interactions are generally not compatible with station area transit oriented development. The plan recommends focusing mixed use TOD at the stations and allowing the heavier industrial uses to be located further from the stations. There is more flexibility on allowable uses between the stations. In cases where jobs need to be located further from the station, there should be a greater emphasis on area-wide first and last mile connections.

The definition of the intended built environment in specific portions of station areas and corridors can create clarity for potential new uses. Transition areas can also be used to allow for flexibility instead of a hard line approach.

3. Industrial, production, repair, and professional and technical services firms engage in a wide variety of activities with correspondingly diverse building and location needs, but are commonly located in "industrial" areas.

The case studies as well as observations in the Denver market and along the Gold Line Corridor show that "industrial jobs" encompasses a broad array of business types with different space needs. However, it is common in areas with industrial space to have a wide variety of uses and business types within them. The presence of railroad and a highway is attractive to a wide variety of users, but they are valued for different reasons. Understanding the reasons why these firms are located where they are is essential to understanding their value to the area and the underlining value of the land and buildings they are located in.

In many cases, the users of industrial buildings are very compatible to transit and TOD and could work within the context of a more walkable or mixed use environment. At the same time, many traditionally defined industrial businesses have larger site needs to allow more efficient freight movement or equipment storage, and larger building needs. In addition, some of their activities may create a nuisance or conflict with transit station operations. While they may benefit from transit access, they have fewer employees per square foot of building than the higher value firms described above therefore support fewer transit riders.

The City of Los Angeles is using performance based zoning along the Gold Metro line to allow the market to dictate which types of industrial uses can be developed close to transit stations and housing based on their impacts to noise, odor, lighting, deliveries, and other nuisance factors. The use of performance zoning is more effective in providing flexibility for industrial uses within areas that may also have residential uses. This approach has been effective for transitioning out the less transit compatible uses and allowing for a mixture of other uses within the industrial area. Also, hybrid industrial land use designations utilizing performance standards allow more flexibility in the future and can attract emerging technologies.

4. Connectivity is a critical factor in establishing innovation districts and more broadly for improving access to industrial jobs.

Part of the success of older industrial districts that have evolved into creative hubs or high value limited production manufacturing districts is due to their connectivity with central business districts and surrounding neighborhoods. These areas, often developed before World War II, frequently have a smaller block structure and a connected street grid, compared to modern truck-based industrial districts with large blocks and arterial roadways and highways. The finer grain development pattern of older industrial districts is more human in scale and allows better bicycle and pedestrian access which is a location factor for the creative workforce and the younger workforce.

As heavier industrial businesses move from older industrial districts and away from transit station areas, their access to transit decreases. In order to provide some transit benefit to these businesses, additional investment in first and last mile connections and street connections are needed. Trying to reinforce the traits of older industrial neighborhoods into more recently developed and lower density industrial areas can be an effective approach to begin creating an environment where industrial spaces and jobs can fit within a transit compatible framework. Introduction of a street grid, sidewalks, and often even curb and gutter, can begin to shift the pattern of the industrial area towards that is more transit friendly and compatible to other uses.

4. TOWN CENTER/MAIN STREET STATIONS

Gold Line Corridor Context

The introduction of transit stations in suburban communities can serve as an opportunity to create a “Town Center” that can serve as a central gathering point and focal point for communities that lack a traditional downtown. As well, historic downtown or main streets that grew up originally around historic rail stations are often given new life through the reintroduction of passenger rail service. A number of communities have been successful in creating a new downtown or town center around a transit station; one notable example is Englewood Civic Center, which was one of the first TODs in the Denver metro area. Even with the initial success of the Englewood Civic Center Station, the City of Englewood is still working to improve the station area and learn from the mistakes made during the station areas first evolution.

To understand the challenges and best practices related to creating/revitalizing a Town Center or commercial Main Street around transit station, this section examines four case studies to provide examples on how cities have approached this issue. The context of these areas range from a greenfield TOD to revitalization of an established but languishing historic downtown.

- Lake Highlands Station Town Center - DART Blue Line, Dallas, TX
- Downtown Carrollton Station, DART Green Line, Carrollton, TX
- Orenco Station - MAX Blue Line, Hillsboro, OR
- Downtown Plano, DART Red/Orange Lines, Plano, TX

Lake Highlands Station Town Center – DART Blue Line, Dallas, TX

The DART Blue Line opened in 1996 as one of the original light rail lines in Dallas. The line has 21 stations with 70 daily trains and an average weekday ridership of 18,900. When initially launched, the line ran from Illinois Station to Pearl Station in the northwest part of downtown. Subsequent extensions expanded the line to Ledbetter, Mockingbird and Garland Stations. The southern terminus of the line is currently Ledbetter Station in south Dallas. From there it runs north under the Dallas Convention and through Downtown Dallas. At Mockingbird Station, the line turns northeast toward the suburban areas of White Rock Lake, Lake Highlands and Garland. Most recently, DART opened a 4.5-mile extension from Downtown Garland to Downtown Rowlett in late 2012.

Lake Highlands Town Center is a mixed-use transit oriented development located at the Lake Highlands Station stop on DART’s Blue Line. The station opened in 2010 as part of the Blue Line extension from White Rock to Downtown Garland and is the first infill station in the DART system. The 70-acre town center project calls for 220,000 square feet of urban-style retail, 30,000 square feet of office and more than 1,200 residential units. The center of the development will be Wildcat Way, a walkable, tree lined promenade with upscale shopping, dining and entertainment easily accessible by DART.

Over \$86 million was spent on the infrastructure improvements, which includes \$73 million from private investment by Prescott Realty and \$13 million from City of Dallas bond funds, Dallas County, and the North Central Texas Council of Governments (NCTCOG). DART's contribution of \$10 million to the light rail station brings total investment in the community to \$96 million. Depending on several factors including when the project is completed and final density, the project could be eligible for up to \$40 million in TIF funds from the Skillman Corridor TIF.

More than 1,000 dilapidated apartments were demolished and improvements such as a pedestrian and bike trail, lake and park areas were constructed in 2011 with funding from the city. After development came to a near halt during the recession, Trammell Crow took over from the previous developer, Prescott Realty. A leasing office for a new apartment project opened in early 2014 and the project is still searching for retail anchors.



Downtown Carrollton Station – DART Green Line, Dallas, TX

The first portions of the DART Green Line opened in 2009 with four stations providing service from MLK Jr. Station in South Dallas to Victory Station near American Airlines Arena. The \$1.7 billion completed route opened in December of 2010. The line is a 28.6-mile route with 24 stations and an average daily ridership of 23,600. The completed Green Line runs from Buckner Station in South Dallas to North Carrollton/Frankford Station. A noteworthy station on the southern part of the line is Baylor University Medical Center. The facility employs nearly 4,800 people and is one of the major centers for patient care, medical training and research in North Texas. The line runs through Downtown Dallas where it shares stations with the Blue, Orange and Red Lines. After passing through downtown it continues to parallel the Orange Line toward Love Field before diverging at Bachman Station. The northern part of the line serves the outer Dallas areas of Walnut Hill and Denton as well as the suburbs of Farmers Branch and Carrollton. The majority of the line runs along I-35. This area has traditionally been the location of much of the industrial space in the metro area and home to many residents with blue collar jobs. The line includes two outer ring suburbs, Farmers Branch and Carrollton, which have used the transit investment as a way to either revitalize their downtown or create a new town center.

In 2009 the City of Carrollton put together a master plan for Downtown Carrollton Station which aims to achieve an integrated vision for a transit-oriented community built around a key transit hub for the Dallas Metroplex. It is the only transit station outside of Downtown Dallas with the capacity for three or more transit lines and it is predicted that it will be the fourth largest transportation hub in the area after Downtown Dallas, Downtown Fort Worth and DFW Airport.

Specifically, it hopes to achieve this vision through a proposed 76-acre pedestrian friendly development centered on the transit facilities and surrounded by new, high-quality residential and commercial mixed uses. Total public infrastructure costs are estimated at \$63 million with \$518 million in a three phase private development process. The first phase, from 2010 to 2015, includes the construction of the station and surface parking, realignment of two roads, as well as streetscape and open space improvements. Proposed land uses in the first phase are primarily multi-family residential with retail and dining facing the major arterial. Phase 2 calls for redevelopment of underutilized industrial and residential property on Belt Line Road. Again most development will be focused on higher density residential with associated retail with some single family townhomes bordering the existing adjacent residential neighborhood. This development is projected to take place from 2015 to 2020. The final phase, from 2020 to 2025, proposes further high density infill development on the existing surface parking lots that will be replaced with structured parking. Stations for the future Crosstown and Frisco Lines will also be added during this phase.



Orenco Station – MAX Blue Line, Hillsboro, OR



The MAX Blue Line is a 32.7-mile long light rail line opened in 1986. It runs from the western suburb of Hillsboro through Downtown Portland and ends in the eastern suburb of Gresham. It is a combination of the Eastside and Westside Max projects that were completed in 1986 and 1998 respectively.

Orenco Station is a departure from many of the other outlying stations in that it is a pedestrian-friendly, high-density suburban town center on 209 acres in the town of Hillsboro. Development began in 1997 on the transit-oriented community of 1,800

homes with office and retail development. A grid of walkable, tree-lined streets and parks surrounded by a variety of residential styles including cottages, condos and row homes extend out from the light rail station and town center.

When funding for the Westside MAX was approved in the 1990's, Portland's METRO regional government committed to creating new residential developments along the line in order to provide a greater density of light rail users in the new corridor. The Orenco site was a greenfield development that was surrounded by thousands of high tech jobs but very little housing. Master developer Pacific Realty Associates and residential partner Costa Pacific Homes tried to mimic older, pedestrian friendly neighborhoods rather than traditional sprawling suburbs. Several zoning changes were enacted in order to meet this goal including ones allowing narrower streets, alley garages and live-work spaces. Results have been positive with the community winning the Governor's Livability Award in 1998 and Sunset Magazine's award for "Best New Burb" in 2005. Transit ridership has also been impressive. According to a 2002 study by Bruce Podobnik of Lewis and Clark College, 22 percent of people in the area use transit to commute as opposed to 6 percent regionally.

Downtown Plano – DART Red/Orange Lines, Dallas, TX



The Downtown Plano station is located on the DART Red Line in the northeast portion of the metro area. The Red Line is one of the two original DART light rail lines that opened in 1996. The Red Line was extended in from Mockingbird Station to Parker Road in 2002. The Downtown Plano Station opened in 2003 and is the second to last station on the line.

Downtown Plano was traditionally the commercial center for the surrounding farming community. As suburban expansion of the Dallas area reached Plano, new development built around the downtown area remained largely ignored. The City of Plano began focusing on redeveloping the downtown area in the 1990's and built the City Hall, municipal courthouse and a new fire station in downtown. The influx of employment and the introduction of the light rail helped spur demand for transit oriented development.

The City proactively planned for the redevelopment of the area around the transit station and purchased a parcel located between the main street of downtown and station. The City solicited a developer to create a TOD project at the station prior to the opening of the station. Plano's Eastside Village was one of the first TODs on the DART system. Developed in 2002 by Robert Shaw and Amicus Partners, the project contains 500 luxury apartments adjacent to the station platform and 40,000 square feet of ground floor retail/commercial space.

Subsequent apartment projects have been built or are planned in the downtown area. The Eastside Village development served as a catalyst to additional private investment in the area, and connected the Main Street and commercial core to the station and City Hall.

In 2013, the City of Plano created an update to its downtown plan that focuses on expansion of the downtown core, specifically to the south to incorporate a planned transit station along the proposed Cotton Belt commuter rail line that is planned to connect from southeast Fort Worth to the northeast suburbs of the Dallas area including Plano with a major terminal at DFW Airport.

Gold Corridor Findings

1. Successful projects have occurred most often due to a proactive planning and investment approach made by the city.

The cities profiled were proactive and aggressive in land acquisition and investing in the transit station areas in order to guide the TOD at station areas instead of waiting on the market to generate development. Also, planning for and soliciting development prior to a transit line opening is possible and can be more effective in catalyzing additional development once the line opens.

2. Multiple funding sources and partners are often necessary to make projects feasible and provide necessary amenities

In greenfield areas, creating a town center usually means attracting development to an area that has no existing market or community infrastructure. Project financing, despite the greenfield setting, is usually complicated and multi-tiered in order to provide the essential infrastructure and amenities necessary to support multiple sites and not just one development site. Creation of a town center requires a minimal scale of development and uses in order to support development and catalyze market demand. This can be difficult to achieve if projects, especially major trunk components, are done in a piecemeal fashion.

Conversely, redeveloping within a historic area is often more complicated due to the existing conditions and age of buildings and infrastructure. Helping provide financing options for both the public projects and the private sector is necessary to ensure the fundamental elements are created.

3. The rail line and rail right of way are often major barriers to station area development.

The rail often separates commercial and residential uses, existing uses from development sites, and transit riders from existing retail and amenities. Connecting both sides of the tracks is necessary to maximize the opportunities present in the station area and often requires creative approaches and financing to achieve. This is a common attribute of many stations located at historic downtowns or where historic stations exist. The majority of the older, historic buildings are on one side of the tracks but the available development sites that have the ability to drive additional vitality and residential uses are found across the tracks. Priority should be placed on ensuring connections between the transit station and the major destinations (i.e., employers, civic facilities, housing, retail) within the station area.

4. Efforts to minimize the impact of construction of new projects and the transit station are often needed to ensure that the existing uses and businesses in historic commercial areas are able to survive the construction process and ultimately benefit from the transit investment.

Most if not all retail uses are dependent on their customer being able to access them and benefit greatly from visibility and regular traffic. Consideration of their needs during construction is needed and often falls to the city and/or a business/merchant association to ensure.

5. HEALTH CARE AND TRANSIT

Gold Corridor Context

The introduction of transit into new areas presents the opportunity to help better connect the residents to needed community services and amenities. Health care access is often difficult for the neediest residents and the introduction of the Gold Line presents an opportunity to try and connect residents more directly to health care providers, services and amenities that will help to live a more healthy lifestyle. The Gold Line Corridor has areas with gaps in health care service provision, as well as areas that lack the services and amenities needed by existing and future residents to live more healthy lifestyles. The Gold Line Corridor does also have some health related assets including an existing Kaiser Permanente facility on Ward Road and the planned expansion of the Red Rocks Community College campus for health care related education at the Arvada Ridge Station. These assets can be leveraged to address these gaps.

To understand the challenges and best practices related to connecting health care and healthy living to transit, two case studies were explored. The case studies explore health care providers' efforts to locate near transit stations and their efforts to connect to patients through transit.

- Lincoln Station – RTD Southeast Corridor, Lone Tree, CO
- The Gateway Regional Center/Oregon Clinic – MAX Red Line, Portland, OR

Lincoln Station–Southeast Corridor – Lone Tree, CO



In 2010, Kaiser Permanente Health Care announced plans to expand its footprint in Colorado after significant growth of 7.2 percent during the recession. Part of this expansion involved developing a multi-specialty center on a 25-acre site just west of the Lincoln Station in Lone Tree. The facility opened in late 2013 and houses more than 300 medical professionals in a new, six-story 275,000 square foot building. Services include medical imaging, obstetrics-gynecology, pharmacy, anesthesia, allergy and gastroenterology among other specialties. The building is LEED certified and includes

multiple green features such as recycled and low-toxin building materials, xeriscaping and low-flow plumbing and energy use conservation measures developed in conjunction with Xcel Energy. Other unique aspects of the development include outdoor patios with views of the Rockies to the west and a perimeter walkway for walking meetings and exercise for members and staff.

When Kaiser purchased the property for \$20 million in May 2010, one of its stated intentions was to bring specialty care closer to its consumer base. This meant choosing a site close to the significant growth south of the Denver metro area. Also of importance was choosing a site that was readily accessible to its 300 employees and 128,000 new members in the area. Locating in Lone Tree adjacent to Lincoln Station satisfied both of these criteria while also providing an employment center to stimulate other growth near the station area. Although the Kaiser facility has not yet been open for a year, other residential construction is beginning to be developed.

The Gateway Regional Center/Oregon Clinic–MAX Red Line - Portland, OR

The MAX Red Line is a 25.5-mile long light rail line that runs east/west through Portland from the western suburb of Beaverton through downtown Portland east to Gateway Transit Center and Portland International Airport (PDX). While much of the line uses tracks and stations that were already in place as part of the East Side MAX project, the extension between Gateway and the PDX was opened in 2001. The MAX system is run by TriMet, the Tri-County Metropolitan Transportation District of Oregon.

The Gateway Regional Center is a 650-acre urban renewal area (URA) in East Portland surrounding the Gateway Red Line MAX station and at the intersection of I-84 and I-205. Although the URA itself is sparsely populated, the neighborhoods surrounding it are some of the most densely populated in Oregon. Within five miles to the north lies PDX and the commercial development at Cascade Station that currently employs more than 14,000 people. All of these factors combined with the relative blank slate of the URA make Gateway Regional Center a unique opportunity to create a true urban development.



Healthcare is one of the more significant employment fields in the area surrounding the Gateway URA. One such employer is the Oregon Clinic, a 101,000 square foot medical facility, who decided to relocate at the Gateway Transit Center. It is part of the Gateway District Redevelopment Plan that encourages green, mixed-use development supported by multi-modal transit. To this end, the percentage of transit commuters for the Oregon Clinic has gone from 1 percent in 2006, when it was at its previous location, to 11 percent

in 2009. Commuters who drove alone have decreased from 89 percent to 82 percent in the same time frame.

Completed in 2006, the Oregon Clinic was developed in partnership with the Portland Development Commission and TriMet. Phase I is a 4-story LEED Gold project that consolidates medical offices, day surgery, on-site diagnostic imaging and a laboratory in one central location. The structural framing in place allows for subsequent phases to add up to 10 floors for housing or additional medical related uses. The total cost of the project was \$33 million of which \$17.75 million was from New Market Tax Credits (NMTC). In addition, the parking structure was completed with \$6 million in tax increment financing (TIF).

The NMTC Program was established by Congress in 2000 in order to encourage private investment in underserved communities. Underserved communities are defined by three low income community metrics; urban renewal areas, CDFI Hot Zones, or those with less than 60 percent of Oregon median family income. When NMTC financing was arranged for this project, the Oregon Clinic had been considering a move out of state. By keeping the Oregon Clinic in Portland, the city is able to retain high skill jobs in an area that is in need of new employment opportunities. At the same time, new medical services and retail uses are in place for an underserved and aging community.

Findings

1. The most successful examples of integration of health care and transit are transit stations located at major medical centers.

The volume of traffic and regional significance of these facilities are able to generate demand and solutions to connectivity that are not present in the Gold Line Corridor.

2. There is a track record of health care providers choosing to locate facilities at transit stations.

However, it is not the only or primary deciding factor and the station must be in an area that the provider is already present or considers a good area for a location. Locating at a transit station has shown in some cases a significant increase in the number of patients that use transit to access the facility. Also, the consolidation of many services at one location can make the facility more effective and will have a greater chance of patients using transit. The connection between the facility and station often requires a much higher degree of pedestrian amenities in order to allow all types of patients realistic access from the station

3. The use of alternative funding sources aimed at community services, and not specifically development or TOD, are often needed to make health care projects feasible.

New Market Tax Credits are an often cited tool that has been successful in creating health care facilities at transit stations. Targeting a variety of financing tools, grants, and other resources may be necessary to help illustrate the potential viability of a facility to a health care provider.

6. EDUCATION AND TRANSIT

Gold Line Corridor Context

Educational facilities and transit lines are naturally compatible as a transit station located at a higher educational facility provides direct access for students and faculty. Students are often among the most transit friendly and reliant population groups. The Gold Line Corridor has three major higher educational campuses at or near the transit stations on the line including the Auraria Campus just south of Union Station, Regis University a mile south of the Clear Creek Station, and the Red Rocks Community College campus at the Arvada Ridge Station. These three assets may present opportunities to provide housing, services, and connectivity for the students and faculty of these campuses.

To understand the challenges and best practices related to connecting educational facilities to transit stations, two case studies were explored. The case studies explore how a major university is embracing the transit connections made to its campus and how non-traditional education and job training are being linked to transit.

- University of Minnesota/East Bank Medical Center – Metro Green Line, Minneapolis, MN
- Rainer Beach Station - Central Link, Seattle, WA

University of Minnesota/East Bank Medical Center - METRO Green Line, Minneapolis, MN

The METRO Green Line is a new light rail line opened in June 2014 that connects the downtown areas of Minneapolis and Saint Paul. The \$957 million, 11-mile line is operated by Metro Transit, also the primary bus operator for Minneapolis and Saint Paul. The agency reported average weekday ridership of 32,000 in June shortly after the line opened.

The Green Line begins at Target Field in Downtown Minneapolis and serves the same five downtown stops as the existing Blue Line. Once it crosses I-35 the line heads east where the West Bank Station serves the University of Minnesota Business School, Law School and West Bank Medical Center as well as Augsburg College. Across the Mississippi River is the University's main campus and East Bank Medical Center. Once it leaves the University the Green Line heads southeast down University Avenue toward Saint Paul. The corridor is home to nine college campuses and seven medical facilities that account for 67,000 jobs and 115,000 students. The neighborhoods surrounding the stations are making the transition to more transit oriented development by improving bus connections and developing more high density residential and walkable retail around the station areas.

The first stop once the Green Line crosses over the Mississippi is the East Bank Station that serves the University of Minnesota's main campus as well as the East Bank Medical Center. Providing access to these two institutions has not only given commuting students a new option for getting to the campus but has also given patients and families a convenient new transit option for appointments at the medical center. The stop is located two blocks from the main entrance to the East Bank Medical Center and less than one block from the University of Minnesota Health Clinics.

The ridership numbers have reflected the increased connections to the University and other destinations along the corridor. The bus routes that served the corridor carried approximately 24,000 riders per day before the Green Line opened. An increase to 27,500 in weekday ridership was predicted for 2015 with 2030 numbers approaching 40,000 per day. In mid-June, shortly after the line opened, ridership was over 32,000 per weekday. Students using light rail to reach campus at the beginning of the semester spiked the numbers even further to 40,500 meaning that 2030 ridership goals had already been surpassed after only three months of operation.



Rainier Beach Station – Central Link, Seattle, WA

The Central Link is a 15.6-mile light rail line that runs from the Seattle neighborhood of Westlake to Seattle-Tacoma International Airport. The Link system is operated by the Central Puget Sound Regional Transit Authority (Sound Transit), an organization encompassing Snohomish, King and Pierce Counties which also operates express bus and commuter rail service in the city. It is operated under an alliance with King County Metro (Metro), a department of the King County Department of Transportation, the operator of the city's bus system.

The northern terminus of the line is in the neighborhood of Westlake, one of the city's major dining, shopping and entertainment districts just a few blocks east of the iconic Pike Place Market. As it continues south, it passes through Seattle's downtown core and financial district served by University Street Station and the Pioneer Square area. Next are the International District and stadium areas where two new facilities for Seattle's NFL and MLB franchises are stimulating commercial development. The SODO area south of the stadiums was a predominately industrial area that has begun transforming into an arts district. The line then crosses Interstate 5 into the residential area of Beacon Hill before it begins to run in the median of Martin Luther King Blvd. in the Mount Baker area. This stretch is characterized mostly by low and medium density residential development with some commercial. As the line once again approaches Interstate 5 in Rainier Beach, industrial uses become more prevalent.

Rainier Beach Station is located along the southern, more industrial portion of the line. Compared with the rest of the Seattle metro area, Rainier Beach has lower real estate values and capital investments as well as deficiencies in local employment, wages and training and education opportunities. Considering these factors as well as the presence of light rail and major arterials, the station area has been identified as a nexus of access for the community where employment, education and entrepreneurship should come together.



In order to catalyze development in this area, the local community's vision is to create a facility that encourages education, innovation and entrepreneurship which addresses many of the deficiencies listed above. The facility would be focused around food and combine a commercial training and production kitchen and classroom space. Supportive services such as a computer lab, day care and social support agency offices would also be a part of the development in order to foster a community connection and lessen obstacles to participation. The Rainier

Beach Food Innovation Zone had already garnered support from the City of Seattle in the form of a Federal Promise Zone application and additional research on a kitchen incubator business model. Zoning changes have also been enacted designating the station area Seattle Mixed (SM-85) which is similar to a neighborhood commercial zone but with allowances for light industrial, food processing and manufacturing. The goal is to enable development of a major employer or some larger scale community uses such as a community college.

Findings

1. Students are typically one of the most transit friendly and also transit dependent rider groups.

Use of transit services will likely be significant if provided in these settings, especially if transit pass are provided or available to students and faculty. The new transit lines in the case studies exemplified led to an increase uses of other modes (i.e. bike, ped., other bus) in relation to the main transit line.

2. Clustering a variety of education and community services at one station area can lead to efficiencies in development and can make the access to these services more convenient and effective.

Sharing common infrastructure and even building space can reduce barriers to connectivity to the educational facilities but also create the opportunity to provide other services and amenities. Funding opportunities may be available to aid in the creation of a variety of services and facilities. Being able to utilize multiple funding opportunities will make the creation of these services and facilities more feasible when they are likely not feasible in a stand-alone setting.