



Everett Link Extension

JANUARY 2022



SOUNDTRANSIT

MODEL CODE
PARTNERSHIP PROJECT

TOD Case Studies



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MODEL CODE
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TOD Case Studies



ACRONYMS

| | | | |
|-------------|---|----------------|---|
| AMI | Area Median Income | LEED ND | LEED for Neighborhood Development |
| BART | Bay Area Rapid Transit | LID | Low Impact Development |
| CMAQ | Congestion Mitigation and Air Quality Improvement | LRT | Light Rail Transit |
| CWG | Community Working Group | MAX | Metropolitan Area Express (Portland) |
| DPP | Department of Planning and Permitting (Honolulu) | MCP | Model Code Partnership |
| DURA | Denver Urban Renewal Authority | OMF | Operations and Maintenance Facility |
| EIS | Environmental Impact Statement | POPS | Privately Owned Public Spaces |
| EVLE | Everett Link Extension | RTD | Regional Transportation District (Denver) |
| FAR | Floor Area Ratio | ST3 | Sound Transit 3 Plan |
| FTA | Federal Transit Administration | TDM | Transportation Demand Management |
| GDP | General Development Plan | TDR | Transfer of Development Rights |
| GFA | Gross Floor Area | TOC | Transit Oriented Community |
| HART | Hawai'i Authority for Rapid Transportation | TOD | Transit Oriented Development |
| HCDA | Hawai'i Community Development Authority | TDR | Transfer of Development Rights |
| IBC | International Building Code | VTA | Santa Clara Valley Transportation Authority |
| ITE | Institute of Transportation Engineers | TDM | Transportation Demand Management |
| LEED | Leadership in Energy and Environmental Design | | |

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Introduction

MODEL CODE PARTNERSHIP

The Everett Link Extension (EVLE) project, which includes an Operations and Maintenance Facility (OMF) North, was included in the Sound Transit 3 (ST3) Plan approved by voters in 2016. The EVLE project will provide fast, reliable light rail service to regional residential and job centers in Snohomish County's growing urban areas. The OMF North is a light rail operations and maintenance facility needed to accommodate additional fleet capacity.

The EVLE project will operate on a 16-mile elevated and at-grade guideway and will add six stations to the light rail network, along with one provisional (unfunded) station, along a corridor through the City of Lynnwood, unincorporated Snohomish County, and the City of Everett. The EVLE project will extend Link service north from Lynnwood City Center to West Alderwood, Ash Way, Mariner, Southwest Everett Industrial Center, SR 526/Evergreen and Everett Station, with the provisional station at SR 99/Airport Road. The ST3 Representative Project also included parking facilities at two locations on the corridor – 550 parking spaces for transit riders at Mariner Park-and-Ride lot, and 1,000 additional parking spaces available for use by transit riders at Everett Station.

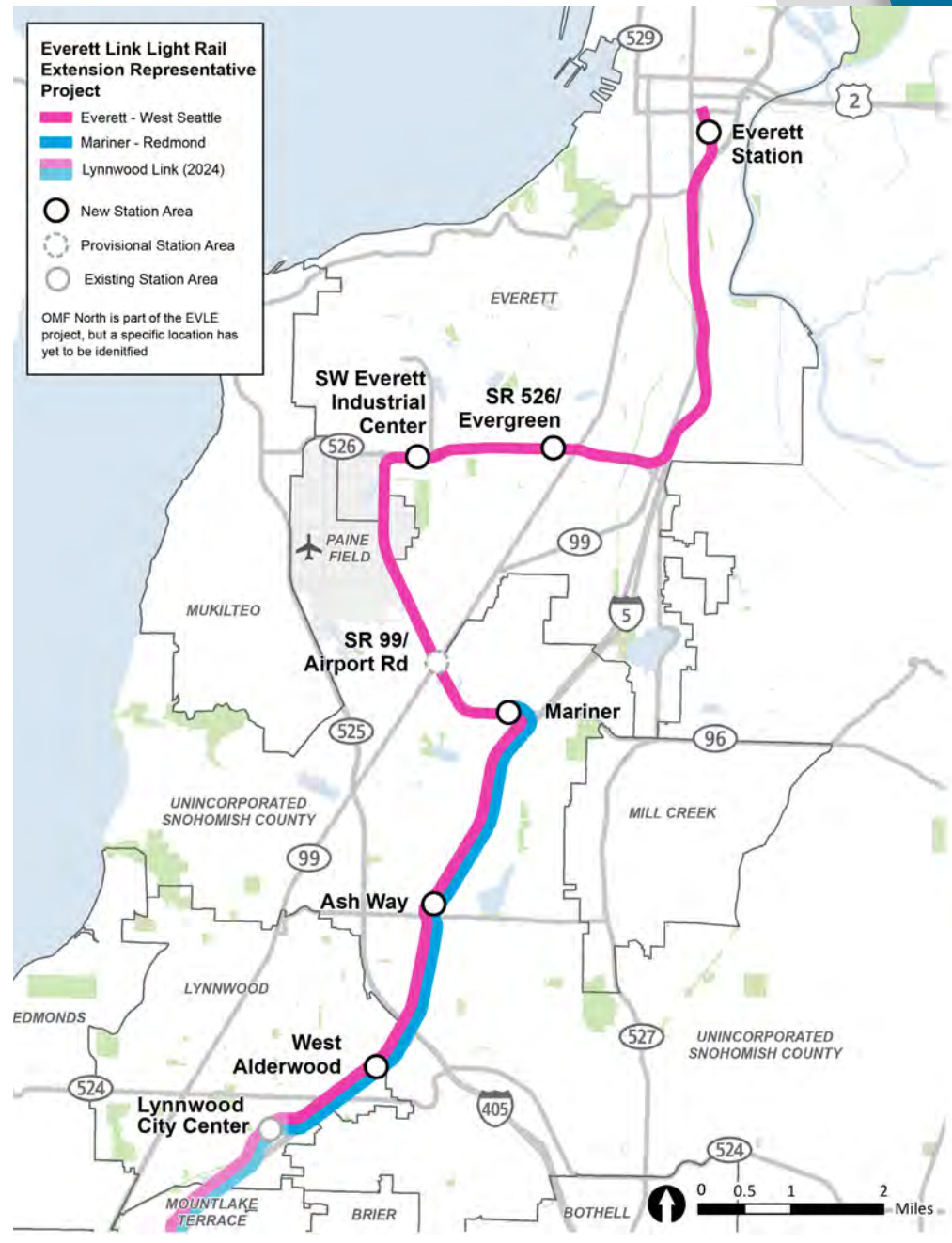


Figure 0.1 Everett Link Extension Representative Project

The EVLE project, which is currently in the early stages of the Planning phase, will include a unique component intended to implement consistent best practices along the corridor and streamline permitting in later stages of the project. This Model Code Partnership (MCP) will be funded primarily by a \$2M grant from the FTA TOD Pilot Program. Sound Transit is working with the three partner jurisdictions along the corridor, the cities of Lynnwood and Everett and Snohomish County, and the Puget Sound Regional Council to analyze the existing regulatory environment and develop potential code language to be considered for local adoption by 2024.

This collaborative effort will evaluate how local policies and regulations may impact the design, permitting and construction of light rail facilities but also incorporate considerations for the broader station areas. This includes regulatory language to facilitate TOD, multimodal transportation, economic development, infrastructure improvements, public/private partnerships, green building, affordable housing, and other topics supported by the jurisdictions and encouraged by the FTA.

The MCP consists of four major components: policy and regulations inventory, gap analysis, case studies, and model code development. The policy and regulations inventory catalogs existing language from guiding documents for each of the three jurisdictions. The gap analysis identifies potential gaps and/or conflicts between policies and regulations within each jurisdiction, between jurisdictions, and between existing and best practices. Case studies will focus on exemplary planning and TOD efforts in peer cities, and model code development will provide options for policies and regulations that could close local gaps and implement best practices along the full EVLE corridor. The partnership will culminate in local adoption of policies and regulations, customized for each of the jurisdictions.

This TOD Case Study Report includes three primary components: case studies, vignettes, and resources. The case studies include six examples of TOD planning efforts across the country that are comparable to the Everett Link Extension project. The vignettes highlight successful efforts to address challenges found in the EVLE corridor even if they are not specifically tied to TOD redevelopment. The resources section includes a variety of resources that were gathered during the research for this report but were not directly related to any particular case study or vignette.

INVENTORY

Policies and regulations inventory

GAP ANALYSIS

- Gap 1: Gaps between policy and regulation
- Gap 2: Gaps between jurisdictions
- Gap 3: Gaps between best practices and existing regulations
- TOD principles and best practices
- Sound Transit permitting conflicts

CASE STUDIES

- Similar planning and TOD efforts in peer cities
- Economic considerations and financial tools

MODEL CODE DEVELOPMENT

- Development agreements
- Parking standards
- Sustainable development
- Utilities and stormwater
- Resources to support code adoption: educational materials, legal review

Model Code Partnership Components



TOD CASE STUDIES

The Model Code Case Studies identify a variety of jurisdictions that have undertaken similar efforts to the Model Code Partnership to provide lessons learned and best practices for the EVLE corridor.

Objectives

The objectives for the Case Studies report include:

- ✓ **IDENTIFY BEST PRACTICES for addressing local goals including promoting the unique identity of each station area.**
- ✓ **PROVIDE EXAMPLES OF SUCCESSFUL STRATEGIES to achieve region-wide goals for population and employment near high-capacity transit while not displacing existing residents and businesses.**
- ✓ **IDENTIFY SUCCESSFUL PUBLIC PRIVATE PARTNERSHIP EFFORTS to provide infrastructure necessary for TOD.**
- ✓ **EXAMINE COMMUNITIES that redeveloped from low-density suburban to an urban form following the TOD principles laid out in the Gap Analysis**

Case Studies

Three of the case studies are examples of comprehensive corridor wide planning of TOD on a light rail line: Honolulu Rapid Transit, Silicon Valley BART Phase II, and Saint Paul Central Corridor. Three focus on a specific station area: Pleasant Hill Station, Alameda Station, and Orenco Station. The case studies were selected to gather a variety of examples of successful implementation of policies addressing themes of interest to the three model code jurisdictions and the FTA.

In selecting the case studies, examples were prioritized that were roughly comparable to the Everett Link Extension project, which includes several freeway adjacent stations in industrial, suburban, and emerging urban contexts. Pleasant Hill and Orenco are examples of suburban stations outside of the central city. Honolulu also includes examples of several stations on a spectrum from suburban or rural to urban. Pleasant Hill and Alameda are both examples of transit-oriented development in close proximity to a major freeway.

The case studies also represent several different stages of the planning process, which allows for examination of both successful existing projects, and best practices that are currently being employed. Honolulu Rapid Transit and Silicon Valley BART Phase II are planning for stations that are not yet open, Honolulu is scheduled for 2031 and BART Phase II in 2030. Both these plans represent some of the current best practices in TOD planning, employing knowledge gained from past efforts. On the other end of the spectrum, Pleasant Hill was a master planned development in 2001. Saint Paul's Central Corridor opened as the Green Line in 2014. Both of these case studies offer an opportunity to see how plans worked out in practice over the longer term. Alameda and Orenco stations are both examples of reimagining of stations that opened originally in the 90s, either building on past success or striking a bold new direction for the station area.

Research for the case studies involved both reviews of the existing literature and past plans and interviews with staff and developers involved in each project.

| THEMES | HONOLULU RAPID TRANSIT | SILICON VALLEY BART PHASE II | CENTRAL CORRIDOR | PLEASANT HILL STATION | ALAMEDA STATION | ORENCO STATION |
|---|------------------------|------------------------------|------------------|-----------------------|-----------------|----------------|
| Public Private Partnerships | | | ✓ | ✓ | ✓ | ✓ |
| Infrastructure Improvements | | ✓ | ✓ | | ✓ | |
| Economic Developments | | ✓ | ✓ | ✓ | | |
| Removing Barriers to Affordable Housing | ✓ | ✓ | ✓ | | | |
| Development Agreements | ✓ | | | ✓ | ✓ | ✓ |
| Parking Strategies | | ✓ | | ✓ | | ✓ |
| Transition Over Time and Between Uses | | | ✓ | | ✓ | ✓ |
| Preventing/Mitigating Displacement | ✓ | ✓ | ✓ | | | |
| Creating a Walkable Grid | | ✓ | | ✓ | ✓ | |
| Green Building and Infrastructure | | | ✓ | | ✓ | |

FTA and Model Code Jurisdiction Themes of Interest and Applicable Case Studies



Transit Corridor Case Studies

HONOLULU RAPID TRANSIT

Honolulu is now adopting mixed-use TOD zoning and new land use regulations for each station area. This effort was proceeded in 2018 with the adoption of TOD design guideline special districts for 19 of the 21 total stations.

SILICON VALLEY BART PHASE II

VTA and the Cities of San José and Santa Clara prepared comprehensive playbooks addressing rezoning, affordability, displacement and mobility for the three new BART Phase II stations. Implementation with TOD overlay zoning is advancing in a separate phase now.

SAINT PAUL CENTRAL CORRIDOR

Central Corridor TOD zoning was part of the most comprehensive TOD initiative in the United States. Interim zoning was completed in 2008 and TOD re-zoning in 2011.

Station Area Case Studies

PLEASANT HILL STATION

Pleasant Hill involves a 30-year transformation of BART surface parking into a mixed-use TOD. Contra Costa County paid for BART parking stalls to be consolidated into a large garage, allowing the rest of the lots to be redeveloped. Additional residential and retail space is under development currently.

ALAMEDA STATION

Alameda Station was opened as part of RTD's original light rail line in 1994 as a park-and-ride station. The station area is in the process of redeveloping with the initial infrastructure investments and catalyzing development, the Denizen TOD, replacing the original station parking with a mixed used development.

ORENCO STATION

The original Orenco Station development was completed in 1998 and was a celebrated TOD example, but it left the area closest to the station as parking. In 2016, construction was completed on the latest phase, which transformed the parking lot into a vibrant and dense mixed-use development.

Common Themes

There are several common threads between the TOD case study candidates.

VISION

Creating a clear vision of what the community wanted was essential in all cases. Because public dollars are limited and because developers must demonstrate feasibility to get projects financed, clear objectives for what to achieve through and for TOD were important. Provision of parks, parking, streets, and affordable housing can be costly. New development can pay for or otherwise mitigate their impacts but public contribution is important as well. Balancing community goals with project viability is essential for success.

CONTEXT

The case studies have several examples of plans that are tailored to the specific context of the area to create a unique community. Pleasant Hill employed a form-based code to create a cohesive aesthetic in the built environment. San Jose' station area playbooks were working from a set list of tools tailored to the specific station area. Honolulu has used a similar approach in its planning efforts, creating one TOD special district that can be overlaid at station areas and also created separate plans for each station area.

FLEXIBILITY

Many of the case studies represent experimental planning approaches or first of their kind developments for those areas and required significant flexibility on the part of both developers and public agencies. This required planning for those developments that the existing regulations were not initially designed for. The examples in these case studies often involved complicated trades between public agencies and developers in order to create financially feasible projects that achieved community goals. A variety of Tplanning tools such as planned unit development and development agreements facilitated deals for public land. Flexibility in required fees and regulations, in exchange for public benefits such as affordable units, public infrastructure, and parks, was also employed. It is worth noting that some of the tools utilized in states like California and Colorado are not currently available in Washington State.

ENGAGEMENT

Engagement is a critical element in any transformative TOD plan and the case studies present a variety of approaches. When planning the later stages of Orenco, there was very little public involvement, but staff worked with the developer to get communitypublic benefits for the community like new parks, roads, and businesses. On the other hand, heavy community involvement was essential at for a successfully master planned development outcome at Pleasant Hill. Developers often valued public processes to address controversial issues with the community upfront. Addressing these concerns upfront can make the development process more predictable, giving developers the flexibility to take on more costly elements of a project that contribute to community goals such as public space or subsidized units. In all cases, honest and upfront communication was key to ensuring critical engagement was met.

CHALLENGES

The TOD projects examined here encountered similar challenges as well, often these do not have easy solutions. Ensuring that land is not redeveloped until the market can support high densities is tricky, in the case of Orenco, the land nearest the station was only reserved because of a pre-existing ban on residential land. In several cases, TOD was built on land that was already publicly owned and used as parking. Funding necessary infrastructure up front can also be tricky. While the value unlocked by these investments is clear, financing these front-loaded costs is not straight forward. Some costs are greater than the value generated by increasing the development intensity, such as subsidized affordable housing. While value capture mechanisms can be one source of funds, additional funding sources are often needed to meet community goals.



COMPREHENSIVE CASE STUDY

HONOLULU RAPID TRANSIT

City and County of Honolulu



PROJECT OVERVIEW

The Honolulu Authority for Rapid Transportation (HART) Rail Project is a 20-mile rail corridor that spans from East Kapolei to Ala Moana Center in Central Honolulu. This elevated rail system will facilitate efficient commutes and other travel to entertainment centers and daily amenities. The HART website, which includes accessible and real-time interactive maps and updates on the overall project, predicts that by 2030, 60 percent of Oahu’s population and more than 90 percent of the island’s jobs will be located along the 20-mile corridor.

Alongside HART’s initiative to construct the rail project in phases, the City of Honolulu’s Department of Planning and Permitting (DPP) has been laying the foundation for TOD within the HART station areas. Development for 19 of the 21 stations will be guided by the TOD Special District Design Guidelines in conjunction with the Land Use Ordinance and the Neighborhood TOD Plans to ensure that development within each area reflects needs and goals that are unique to their respective communities. The other two stations will be guided under the TOD Overlay Plan by Hawai’i Community Development Authority (HCDA) and its public sector partners.

Phase 1 of the HART system, which includes East Kapolei, Waipahu, Aiea-Pearl City, and Halawa neighborhoods, is planned to open in 2022 and the full system by 2031.

The City of Honolulu has undergone an extensive process to plan for TOD around stations along the HART corridor, beginning with the development of neighborhood TOD plans. The boundaries for each are specified in the neighborhood TOD plan but generally extend one half-mile from the station and can include from one to three station areas depending on the context.

Neighborhood TOD plans define the vision and necessary actions for how each TOD neighborhood will grow around light rail transit. According to the Neighborhoods element of the TOD section of the City and County of Honolulu website, TOD plans are customized to each neighborhood, but several key items are addressed in every plan: Land Use, circulation and parking, urban design, historic and cultural resources, affordable housing and gentrification, healthcare and other relevant community services/facilities, pedestrian amenities, and public investments. Eight neighborhoods comprise the 19 stations for which TOD Special District boundaries have been defined.



TOD Neighborhoods, Honolulu.gov

TOD Case Studies



Ordinance 09-4, Sec. 21-9.100-3 of the Land Use Ordinance, established the City's TOD program and allowed for the creation of TOD Special Districts based on the neighborhood TOD plans. TOD neighborhoods are at various stages of implementing TOD Special District Zoning. Once the neighborhood TOD plans are adopted by the City Council, the next steps are adopting the TOD Special District and new mixed-use zoning around the stations and amending the Zoning Map. Other implementation efforts, such as action plans, infrastructure improvements, and catalytic development projects are also being carried out as part of each neighborhood TOD plan, but neighborhoods are at different steps in this process.

For instance, in November 2021, just one neighborhood comprising two stations (Waipahu Neighborhood) has had its proposed rezoning adopted by City Council and the Zoning Map amended as part of Ordinance 17-54. One TOD neighborhood comprising three stations (Aiea-Pearl City Neighborhood) has had their TOD Special District rezoning proposed to the City Council but it is not yet approved. The other neighborhoods have not proposed their TOD Special District rezoning and are governed by the existing zoning regulations. The timeline for TOD Special District and rezoning adoption may vary due to the different needs of each TOD neighborhood and other factors.

GOALS FOR THE PROJECT

The City of Honolulu's TOD program emphasizes customized and context-specific TOD planning that reflects community goals and values. There are a variety of plans and guidelines that went into encouraging successful TOD areas in Honolulu. Neighborhood TOD plans were developed by consultants in coordination with the City and incorporated community engagement throughout, including public workshops, stakeholder meetings, and community surveys.

Along with market studies for each TOD neighborhood within the 20-mile corridor, TOD Demand Analysis and Market Projections analyzed land use and evaluated potential development opportunities. Neighborhood TOD plans were created to align future development along the corridor with the vision and goals of each rail station community. These neighborhood plans serve as the basis for the adoption of the TOD Special Districts.

In conjunction with the Neighborhood TOD plans, the TOD Special District Design Guidelines, adopted in June of 2018, aim to address building placement and design, parking and loading, multi-modal design, sidewalk design, and nonconformities. The Guidelines also specify design expectations for "key streets," which are streets within the TOD Special District that are in the direct vicinity of the rail station. These guidelines promote pedestrian-friendly environments and cover aspects of the built environment such as ground floor uses, building frontage transparency, maximum setbacks, and building entrances.

The Design Guidelines modify existing zoning within the identified special districts to promote TOD. The following are the TOD Special District objectives as specified in Land Use Ordinance Sec. 21-9.100-6:

- ✓ **Promote an appropriate mixture and density of activity** around the rail transit stations in order to maximize the potential for transit ridership and promote alternative modes of transportation to the automobile
- ✓ **Allow for more intense and efficient use of land** for the mutual reinforcement of public investments and private development
- ✓ **Support transit by ensuring connectivity and convenient access**, while limiting conflicts among vehicles, pedestrians, bicycles, and transit operations
- ✓ **Establish standards for buildings and sites** that provide quality urban design that attracts and encourages pedestrian activity
- ✓ **Provide a high level of streetscape amenities** that create a comfortable environment for pedestrians, bicyclists, and other uses, such as walkways, street furniture, street trees, and human-scale architectural features
- ✓ **Promote an appropriate mix of housing types**, including affordable housing and rental housing
- ✓ **Promote quality publicly accessible and useable spaces** and gathering places
- ✓ **Contribute positively to the economic enhancement of the affected area and the city**, particularly about providing a broad mix of uses, diverse housing, and diverse employment opportunities

POLICIES, REGULATIONS AND STANDARDS

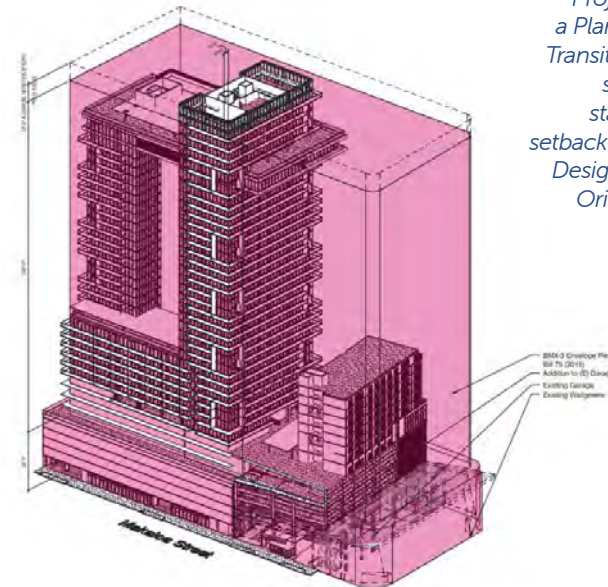
As part of Honolulu’s efforts to facilitate implementation of TOD around rail stations, the City created the TOD Special District. The TOD Special District regulations are in addition to the underlying zoning district and may supplement or modify the underlying regulations to better support TOD. In many instances, TOD District regulations allow for additional density and/or height in exchange for community benefits provided with the development. If any regulation pertaining to the TOD Special District conflicts with an underlying regulation, the TOD Special District regulation takes precedence.

There are specific requirements and development standards that must be applied throughout a TOD Special District as specified in Ordinance 17-54. A general list of the aspects of the built environment that the TOD Special District regulates is included below:

- **Density and Height**
- **Building Area**
- **Yards, setbacks, street façade, and building placement**
- **Building orientation and entrances**
- **Building transparency, blank wall limits and required openings for ground-floor facades**
- **Pedestrian Walkways. Walkways with a minimum five-foot unobstructed width must be provided according to several standards**

The TOD Special District Design Guidelines were developed to translate the TOD Special District regulations using more detailed explanations and illustrations.

In addition to TOD District regulations and the TOD Special District Design Guidelines, the City has three types of permits for development within Special Districts that are utilized based on the scale and impact of the project:



Project approved under a Planned Development-Transit Permit. White areas show deviation from standard massing and setback requirements. From Design Guidelines: Transit Oriented Development Special District 2019

Minor Special District Permit – for projects that have limited impacts on surrounding community

- **Modifications to existing developments not along Key Streets**
- **Minor deviations from development standards**
- **Streetscape improvements**

Major Special District Permit – projects that have a significant impact on the surrounding community

- **Major modifications to projects along Key Streets**
- **Projects seeking height and density bonuses through a Planned Development-Transit Permit (see below)**

Planned Development-Transit Permit (PD-T) – allows additional height, density, and flexibility for “catalytic” projects. These projects:

- **Will define the areas around them**
- **Should incorporate community benefits commensurate with the bonuses and can provide flexibility.**
- **Requires approval by the City Council.**

PROJECT CLASSIFICATION

All development in a TOD Special District

No Special District Permit Required

EXAMPLES

- » Less than one acre in area
- » Meets development standards enumerated in the LUO
- » Demolition of structures
- » Streetscape improvements that results in no substantial impacts to the TOD Special District
- » Certain above-grade infrastructure specified in the LUO
- » Below-grade infrastructure improvements
- » All emergency and routine repair and maintenance work

Minor Special District Permit Required

EXAMPLES

- » Major Modifications, additions, or new construction on sites one acre or more in size that are not located along Key Streets
- » Modifications to the following standards:
 - Yards and setbacks
 - Street facade and building placement
 - Building orientation and entrances
 - Building transparency
 - Number of parking stalls
 - Location of above-ground surface parking
 - Location of service areas and loading spaces
 - Bicycle parking
 - Commercial use density in the apartment mixed use districts
 - Additional commercial density in the apartment mixed use districts
 - Reconfiguration of sidewalk area
 - Streetscape improvements if the project results in substantial impacts to the TOD Special District
- » Major above-grade infrastructure improvements not covered elsewhere
- » Residential units in the IMX-1 District

Major Special District Permit Required

EXAMPLES

- » Major modifications, additions, or new construction on sites one acre or more in size that are located along Key Streets. Or if the project is not located along Key Streets but the Director determines that the project may result in substantial impact
- » Projects seeking densities or heights and modifications to other development standards beyond the base limits specified in the LUO
- » Modifications to FAR of up to 3.5 and/or bonus height not exceeding the lesser of 50% of the total bonus height, or 50 feet. All other projects seeking densities or heights beyond the base limits specified in Sections 21-9-100-8(a)(1)(A) and 21-9-100-8(a)(1)(D) are PD-T, or IPD-T

TOD Special District Project Classification from Design Guidelines: Transit Oriented Development Special District 2019



STAKEHOLDER ENGAGEMENT STRATEGIES

Community engagement has been an integral part of the City's TOD efforts. The extent and level of community and stakeholder engagement looks different for each TOD neighborhood, but multiple community workshops were conducted for each station area. Community needs were identified based on feedback gathered from these workshops, surveys, and existing conditions analyses. These community engagement efforts address local issues such as land use and community character, among other issues. Including the community and other stakeholders in these planning processes allows the resulting TOD zoning to support local goals and values.

DPP recognized that there were different visions for TOD in each of the neighborhoods along the corridor. More suburban neighborhoods envisioned lower density types of development compared to the more urban neighborhoods that envisioned higher density development. Workshops and charrettes were effective at defining what scale of TOD best fit the vision of each neighborhood.

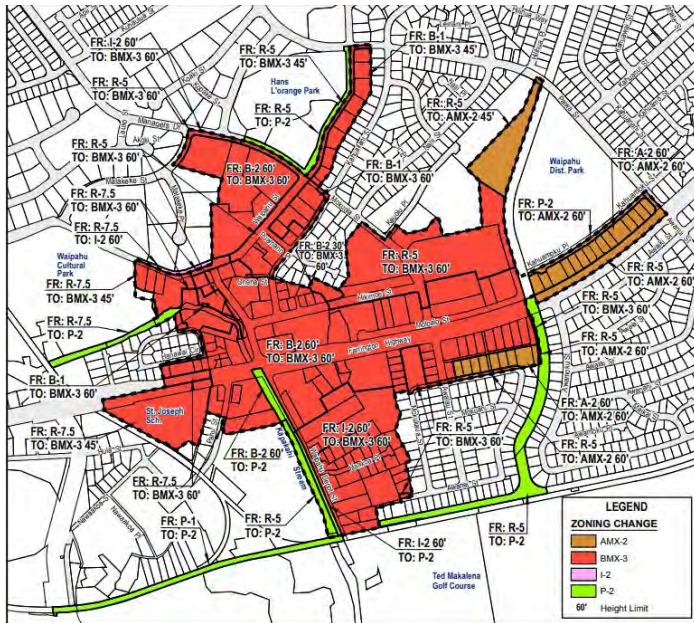


TOD Neighborhood Community Workshops from Waipahu Neighborhood TOD Plan 2014



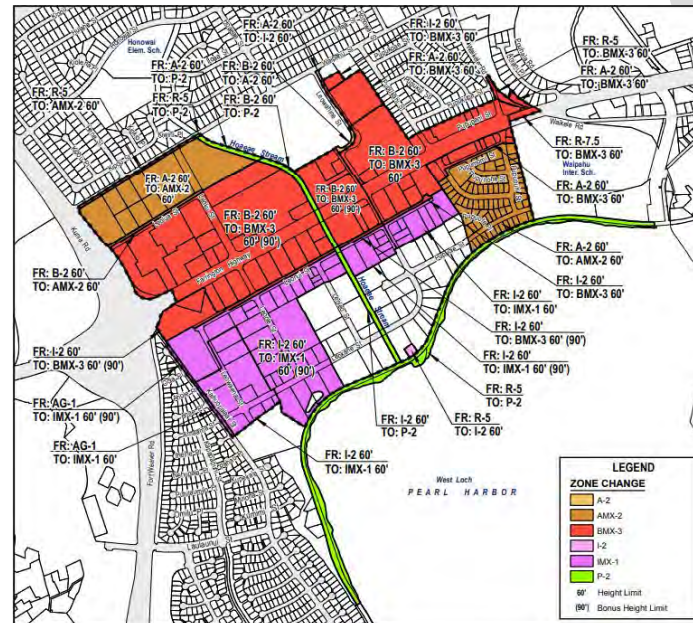
TOD Special District (for illustration purposes only). Honolulu.gov

TOD Case Studies



Waipahu TC Station Area

Waipahu TC Station Area, Honolulu.gov



West Loch Station Area

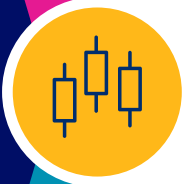
West Loch Station Area, Honolulu.gov

OUTCOMES

A crucial element of TOD planning is the transition from single-use zoning to high-density mixed-use zoning around the transit stations. This change in zoning will allow additional housing and job opportunities in these key areas. The development of specific Neighborhood TOD plans emphasized that one set of regulations cannot properly address the unique needs and concerns that may differ from TOD neighborhood to neighborhood.

The Land Use Ordinance works in conjunction with the neighborhood TOD plans to define the areas to apply TOD-supportive zoning. Specifically, Ordinance 17-54 serves to establish the TOD Special District with appropriate land use standards and guidelines for the areas surrounding the rail stations. All the neighborhood TOD plans have been drafted and submitted to the Planning Commission and City Council for approval, except for the Airport Area TOD Plan.

The first and only neighborhood for which a TOD District has been officially adopted is the Waipahu Neighborhood, which includes the West Loch and Waipahu Transit Center station areas. While TOD Districts have not been adopted at other station areas yet, the successful adoption of the TOD Districts at West Lock and Waipahu Transit Center stations and the implementation of TOD-supportive zoning within those Districts sets an example for the other stations along the corridor.



ECONOMIC DEVELOPMENT AND FINANCIAL INCENTIVES

There are bonuses specifically tied to TOD Special Districts if community benefits are provided through the Planned Development-Transit Permit (IPD-T/PD-T). If TOD projects can promote highly effective transit-enhanced neighborhoods, they are eligible for height and density bonuses that allow for additional setback flexibility and increase development rights. Examples of community benefits include affordable housing, streetscape improvements or public gathering spaces.

Furthermore, while there exists an affordable housing requirement that needs to be met, incentives have also been put in place to encourage TOD to build more affordable

housing near the rail stations. These financial incentives take the high cost of land and construction in Honolulu into account by providing a variety of incentives and financial tools that will help encourage developers to build affordable housing in TOD areas and Special Districts. These incentives can take form as exemptions from property tax increases during construction, certain fees, and more. The City also provides private developers with TOD opportunities when utilizing public land in exchange for end uses that benefit the community, such as affordable housing. Additional information on the City's affordable housing requirements and incentives can be found on the Honolulu Mayor's Office of Housing website.

Lastly, Opportunity Zones, which are census tracts made up of low-income communities, intend to support renewed community investment through tax breaks for new development and local business investment. There are existing financial incentives for developers who re-invest realized capital gains into Opportunity Funds. These Funds are then used to provide investment capital in communities located within these Opportunity Zones. More information can be found on the Hawaii Opportunity Zones website as well as the Zoning & Policy section on the City and County of Honolulu TOD page.



Opportunity Zones from Honolulu.gov

RESULTS OBSERVED IN DEVELOPMENT AROUND STATIONS

Since the rail project is still being constructed, and only two TOD Special Districts have been adopted along the corridor, it is too soon to observe results of development around light rail stations. The zoning adoption progress has been extensive because work is being done at the parcel level.

No interim zoning was adopted while the rail line is being built. Until the parcel-specific zoning within the TOD Districts is adopted, the existing Land Use Ordinance zoning applies. DPP has engaged developers who are applying for permits to develop land in proximity of future rail stations with the purpose of making their proposed development more compatible and TOD-friendly, but this informal engagement has yielded minimal results. The IPD-T (Interim Planned Development Transit) permit has been to facilitate higher density development around rail stations on a case-by-case basis before the adoption of TOD zoning districts. The IPD-T allows for density and height bonuses and has been successful at encouraging TOD before

the rail line and stations have been completed. A complete list of TOD projects currently under review and submitted using the IPD-T permit can be found on DPP's website.

Even though Neighborhood TOD Plans have been adopted in each neighborhood, TOD Districts have only been adopted in one neighborhood, and proposed in another. Harrison Rue, the TOD Administrator at the City and County of Honolulu, indicated that a few factors have slowed down the process to adopt TOD District zoning. First, staff have limited capacity to get TOD District rezoning proposals to the City Council. Second, sea level rise has become a key issue for the City and new maps developed by the Honolulu Climate Change, Sustainability, and Resiliency Office (CSR) show that several TOD areas will be impacted by sea level rise. DPP is deliberating whether to allow for height and density bonuses in those TOD areas or if to only allow those bonuses in areas not affected by sea level rise.





SUMMARY: LESSONS LEARNED

TOD NEIGHBORHOODS AND PLANS

- ✓ Strong community and stakeholder involvement (surveys, open houses, meetings, etc.) is a key to success.
- ✓ Concept of multiple plans curated by neighborhoods (rather than one plan that may promote a 'one size fits all' mentality) leads to buy-in by the communities.
- ✓ Serves as the basis for the creation or amendment of a TOD Special District and the development regulations that are applicable. These TOD plans address specific objectives and consider population, economic, market analyses, and much more.

TOD SPECIAL DISTRICTS GUIDELINES / KEY STREETS

- ✓ Provides additional examples to show what the zoning transitions may look like and how the TOD plans and LUO work alongside the TOD Special District Guidelines, which utilize diverse language to allow neighborhood TOD plans to follow the guidelines to the extent practicable.
- ✓ Key streets within TOD Special Districts are identified as the most vital for encouraging walkable, vibrant, and economically active neighborhoods close to the transit system. Active ground floor uses, such as retail, restaurants, or entertainment, are prioritized for these streets. There are some development standards that only apply to the lots at the visible front of these key streets.

REGULATIONS/ZONING/PERMITS

- ✓ Planned Development-Transit Permit provides development projects height and density bonuses and increased flexibility for creative, catalytic redevelopment projects within the TOD Special District that would not be possible under a strict adherence to the development standards of the LUO. These catalytic projects ultimately serve as inspiration and encouragement to jump start future projects and development within the TOD areas.
- ✓ TOD Special District boundaries are defined for each station area based on that neighborhood's TOD plan. TOD Special Districts modify the underlying zoning to regulate site design and layout while also allowing for bonus density and height.



COMPREHENSIVE CASE STUDY

SILICON VALLEY BART Phase II

San Jose and Santa Clara, California



PROJECT OVERVIEW

The Santa Clara Valley Transit Authority (VTA) BART Silicon Valley Phase II project is a six-mile extension from the existing Berryessa BART Station in north San José into downtown San José and ending in the City of Santa Clara. Most of this extension will be constructed as a tunnel, with stations at 28th Street/Little Portugal, Downtown San José, Diridon, and Santa Clara. VTA is scheduled to begin construction on BART Phase II in 2022, with service opening in 2030.

In a partnership with the cities of San José and Santa Clara, VTA led the preparation of detailed Transit Oriented Communities (TOC) playbooks for the 28th Street/Little Portugal, Downtown San José, and Santa Clara Stations. Diridon Station is undergoing a separate station area planning process associated with the expansion of the Google campus in the station area. These playbooks spell out detailed policies, regulations, and strategies for affordable housing, anti-displacement, economic development, innovative finance, implementation, transportation, and innovative parking strategies. These playbooks are well designed and are intended to communicate the agency's TOC vision to elected officials and the broader public. This work was funded by an FTA TOD Planning grant awarded to VTA. Work to advance the playbooks is continuing as part of Advanced Planning for Transit Oriented Communities (AP4TOC) funded by a separate FTA TOD Planning grant. VTA will collaborate with the two cities on implementing the TOC playbook recommendations.



Map of BART Phase II Extension from VTA



TOD Case Studies

Example of a spread in the Downtown San Jose Station TOC Playbook

TRANSIT ORIENTED COMMUNITY STRATEGIES - THE BIG MOVES



Update Land Use Regulations Across the Station Area to Ensure Good Transit Oriented Communities

KEY STRATEGIES CHECKLIST

- Establish minimum densities for office and residential throughout the station area based on context
- Increase Downtown Housing Allocation in the General Plan
- Prioritize office development directly adjacent to the station



Why is this 'Big Move' essential for Transit Oriented Communities?

Elsewhere, governments have employed robust TOC toolboxes with regulatory and financial incentives. Specialized TOC land use regulations have consistently been adopted to allow greater density, promote a mix of uses, enhance walkability, and require less parking. In Downtown San José, the application of current policies could preclude future TOC by allowing incompatible lower density, auto-oriented development.

The scale of the public investment in BART, the regional housing crisis, and recent action by the California legislature (facilitating higher density housing near transit) deserves nothing less than ensuring good, equitable TOC outcomes. Given that the new BART station will be central to the civic, cultural, and commercial core of the existing Downtown, it is essential that public policy recognizes and protects the substantial public investment by ensuring good TOC outcomes.

| | | |
|---------------------------------|--------------------------------|----------------------|
| Key Access to Everyday Needs | Housing Choices for All Income | Active Street Life |
| Help Address the Housing Crisis | Local Resources and Services | Community Supporting |

Opportunities

- Realize the community's vision for a transit-supportive station area and an amenity-rich central business district.
- Help address the local housing crisis with new affordable and workforce housing in an area that is already seeing displacement and gentrification.
- Support transit ridership and reduce the need for private vehicles.

Challenges

- Displacement and gentrification are already underway in Downtown San José.
- Mid-rise development is currently more financially feasible than high-rise. Development on some major opportunity sites is moving forward at densities lower than recommended.
- Maximum heights in Downtown San José are capped to avoid obstructing FAA determined navigable airspace on the approach to San José Mineta International Airport, thereby limiting development potential.

Create an active and vibrant 24/7 mixed-use district

Maximize employment uses adjacent to the transit station.



The playbooks are organized around six strategies or "Big Moves" for TOCs:

- Update land use across the station area to ensure good transit-oriented communities.**
Ensure greater density and allow more housing.
- Protect and support small businesses and enhance commercial nodes.** Provide appropriate size and space for businesses.
- Protect and produce workforce and affordable housing through the station area.** Leverage public land and pursue partnerships.
- Enhance access and assist community identity.** Require a healthy street grid.
- Unlock the value of mobility for all stakeholders.** Right size parking and encourage TDM.
- Prioritize funding and implementation.** Utilize a framework for collaboration and hire a city TOD manager.

BART Phase II Playbook Strategies for TOC

Scale of Opportunities for TOC






The scale of the opportunity for capturing new growth in the station areas is significant. To put it in context, new development in the three station areas is the equivalent of adding more than another Downtown San José to the corridor: + 40,000 new jobs and housing for + 80,000 new residents by 2040. There is potential for 45 million square feet of new development along the corridor.

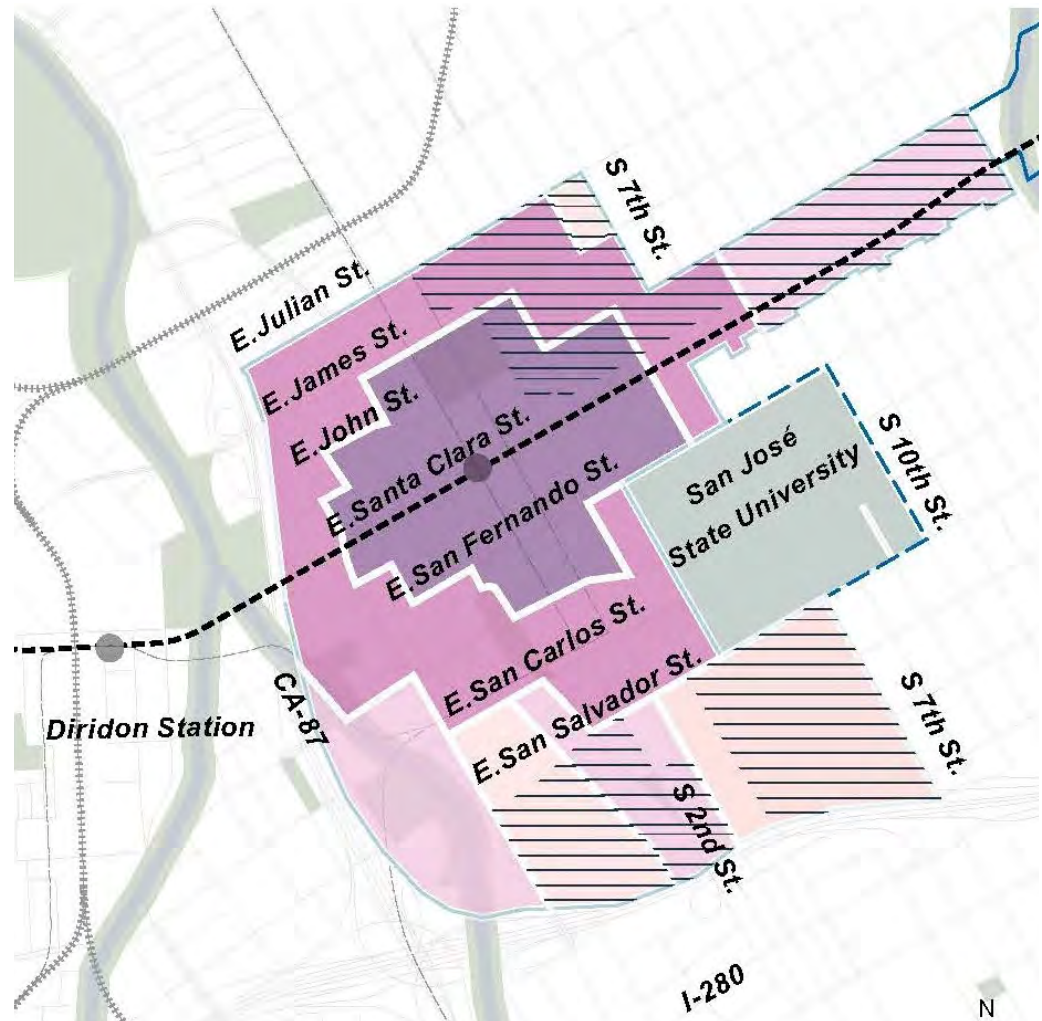
Planned density and building height in the station areas are defined by zones, with Zone 1 being closest to the station and having the highest density and Zone 4 being the farthest from the station and the lowest density. The maximum heights for buildings are constrained by FAA regulations due to proximity to the San José International Airport. Maximum building heights range from 155' for the Santa Clara Station to 300' for the Downtown San José and 28th Street/Little Portugal stations.

MAP OF 28TH STREET DENSITY ZONES

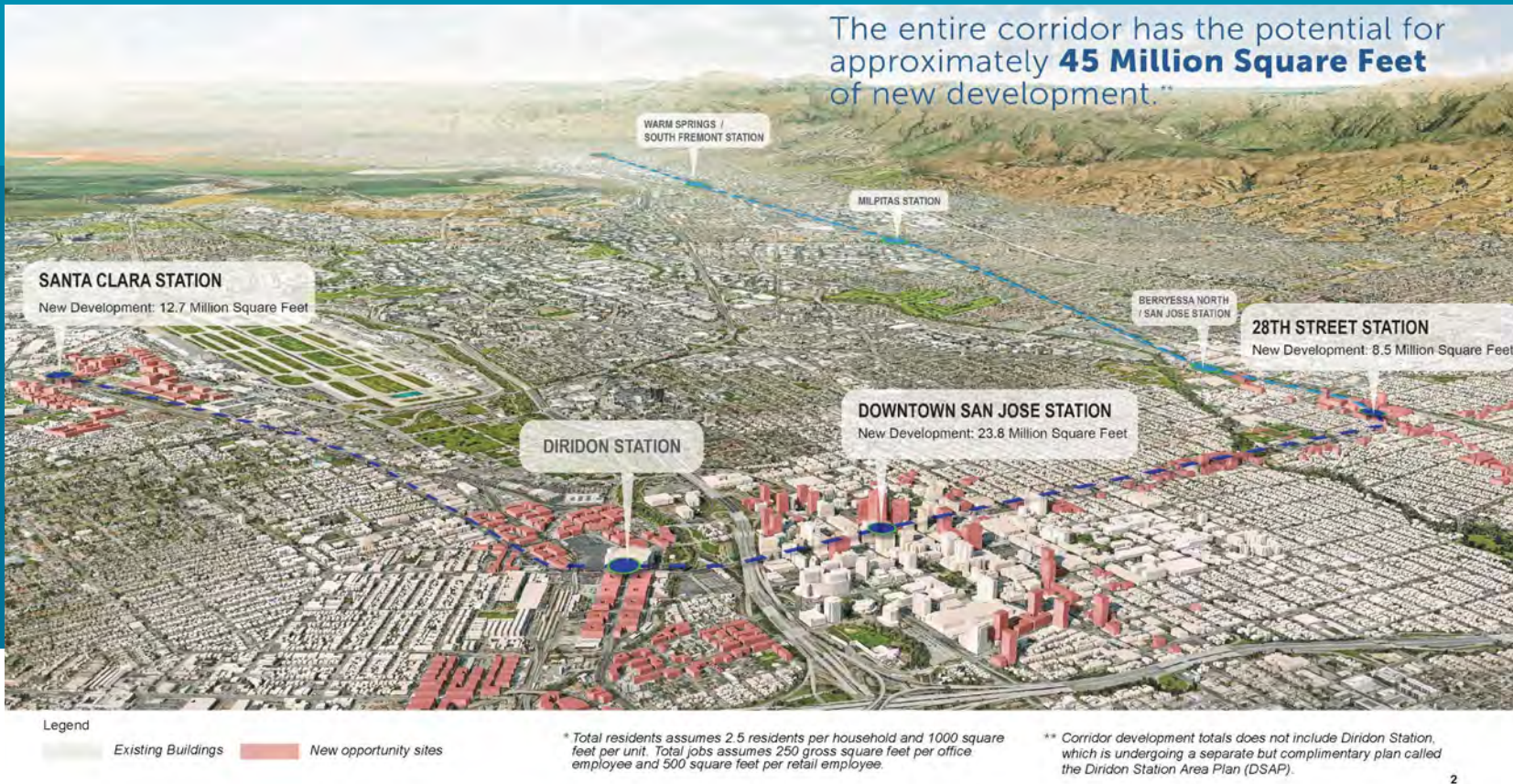
The shaded areas on this diagram represent the recommended density ranges which should be applied to all opportunity sites which occur within that zone. Opportunity sites are defined and identified in Section B of the Technical Appendix. Please note that there is no requirement or expectation that other properties which are not opportunity sites would be redeveloped, nor were these sites included in the calculations for development potential in the station area.

Legend

-  ZONE 1: HIGH DENSITY OFFICE & RESIDENTIAL, TRANSIT SERVING RETAIL
-  ZONE 2: MEDIUM DENSITY OFFICE & HIGH DENSITY RESIDENTIAL
-  ZONE 3: MEDIUM DENSITY RESIDENTIAL & RETAIL
-  ZONE 4: LOW DENSITY, MIGHT BE LOWER IF NEAR RESIDENTIAL AREA
-  HEIGHT RESTRICTION



Map of Downtown San José Station Density Zones from the playbook



Site Context

The site context for these three stations vary greatly. Santa Clara Station is in an area that is currently characterized by industrial land uses, low-intensity development, and vacant land. It is adjacent to the San José International Airport, an existing Caltrain station, and is within walking distance of residential neighborhoods, downtown Santa Clara, and a university. There are major opportunities for redevelopment in this area.

The Downtown San José Station is in the core of downtown, which is currently characterized by mid to high-rise mixed-use development. There are many underdeveloped and underutilized parcels near the station. There are opportunities to increase density in this station area.

The 28th Street/Little Portugal Station area is in an urban neighborhood context with lower density. The station is adjacent to Highway 101. This station area is part of the city's Urban Village program, which establishes transit-oriented mixed-use communities.



GOALS FOR THE PROJECT

In the Background Conditions Report for this project, VTA defines many goals for TOC in BART Phase II station areas. These goals include:

- ✓ Encouraging economic development
- ✓ Promoting dynamic mixed-use, mixed-income TOC environments
- ✓ Creating affordable and workforce housing by “Protecting, Preserving, and Producing” affordable units
- ✓ Supporting small businesses
- ✓ Enhancing commercial areas
- ✓ Providing mobility for everyone
- ✓ Strengthening community identity

VTA and San José had previous experience with TOD planning around BART stations in Silicon Valley BART Phase I, which demonstrated the need for preemptive planning. Before the opening of the BART stations, the City of Milpitas undertook extensive planning, preparing entitlements and general plan zoning districts around their station. San José was less proactive in planning around the Berryessa station. The planning paid off for Milpitas, which now has far more high-density development in the station area. With three new stations in San José and another in Santa Clara, VTA and the jurisdictions wanted to make the most of the investment.

SPECIFIC TOC RECOMMENDATIONS

The recommended policies, regulations, and standards for BART Phase II stations align with the project’s six Big Moves for TOC. These broad strategies are individually tailored to each station area. The following recommendations from the VTA TOC playbooks are based on themes that may be of greatest relevancy to the Everett Link Extension project.

Affordable Housing and Displacement

Affordable housing strategies have two challenges: raising the necessary funds to produce new dedicated affordable units and protecting existing low-income renters and homeowners. The second challenge is largely the purview of the local jurisdiction who can pass new laws to protect tenants by providing legal services, renter protections, targeted emergency rental assistance, and laws prohibiting source of income discrimination.

The second challenge requires coordination between multiple organizations that can provide funding. The playbooks for the two San José lay out a specific dollar amounts, \$552 million needed to meet the City’s goal of over 3,000 new affordable housing units in Downtown San Jose and \$338 million for nearly 2,000 units in Little Portugal. The playbooks detail a number of possible funding sources including state assistance, VTA and other public properties that can be sold at a discount to housing providers, and Tax Increment Financing (TIF) revenue. The playbooks recommend dedicating 20% of TIF funds to affordable housing construction.

Along with residential displacement, the playbooks are also concerned with commercial displacement in the future station areas. The playbooks include strategies to preserve existing businesses such as providing targeted assistance to impacted businesses, expanding existing City programs, and incentivizing developers to provide relocation assistance to businesses displaced by projects. In addition, the playbooks recommend encouraging the creation of smaller commercial spaces to house local businesses. Currently, San José requires a substantial commercial FAR for mixed-use developments resulting in larger spaces that stand vacant because of high rent. The playbooks recommend reducing this requirement and requiring a variety of shop sizes to support smaller operations.

TOD Case Studies

Parking Strategies

The playbooks include aggressive recommendations for right-sizing parking constructed in the station areas. Recommendations include eliminating parking minimums for all new developments, establishing context-specific parking maximums, and employment of Transportation Demand Management (TDM) strategies.

To accommodate necessary parking in the station areas, the playbooks recommend the use of shared mobility districts. These districts manage parking and mobility throughout an area, providing parking as a shared public resource. These function by requiring landowners to enter into shared parking agreements, allowing them to provide money to the district in exchange for parking instead of constructing it onsite. This allows for a more efficient use of parking between uses with different demand levels at different times of day.

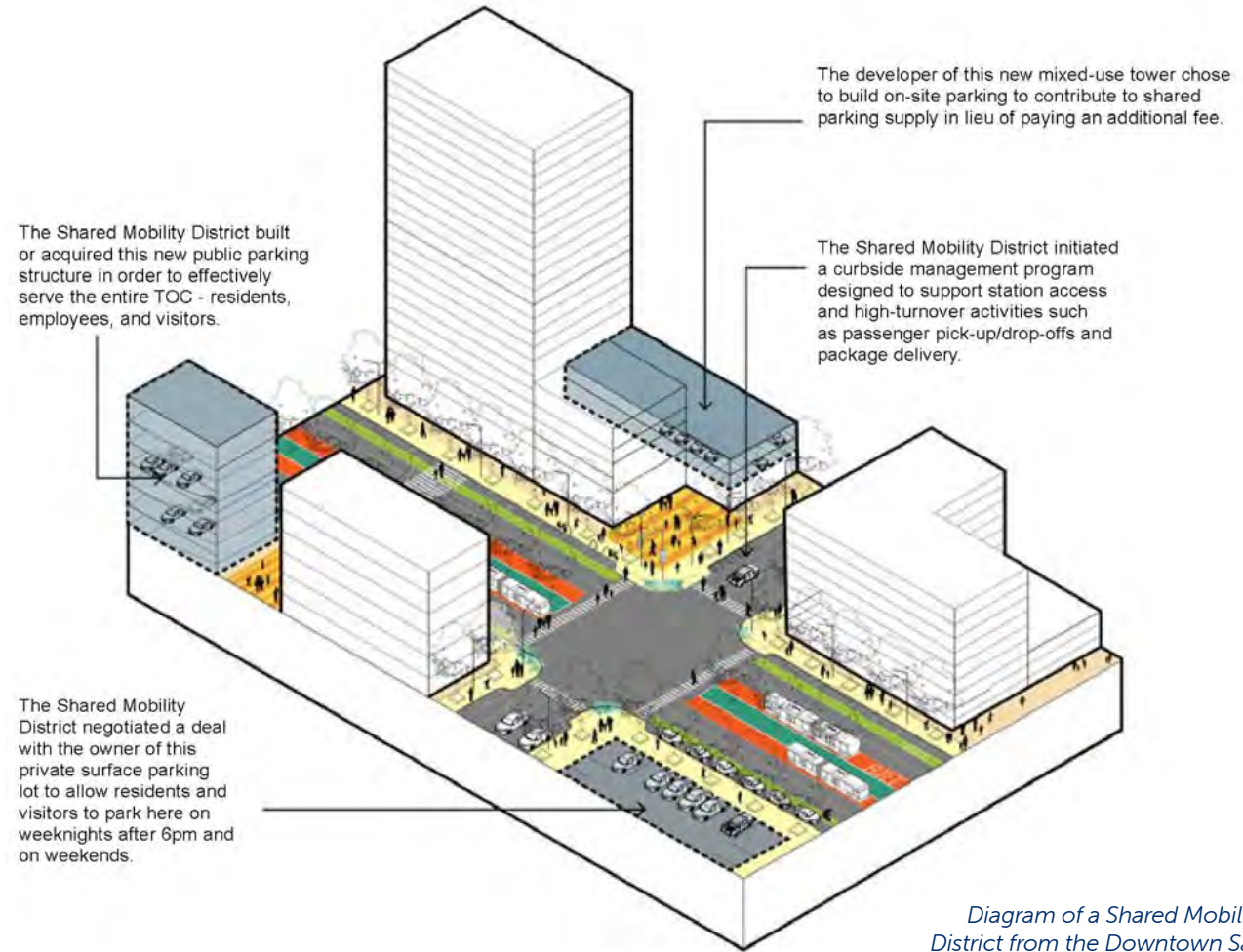


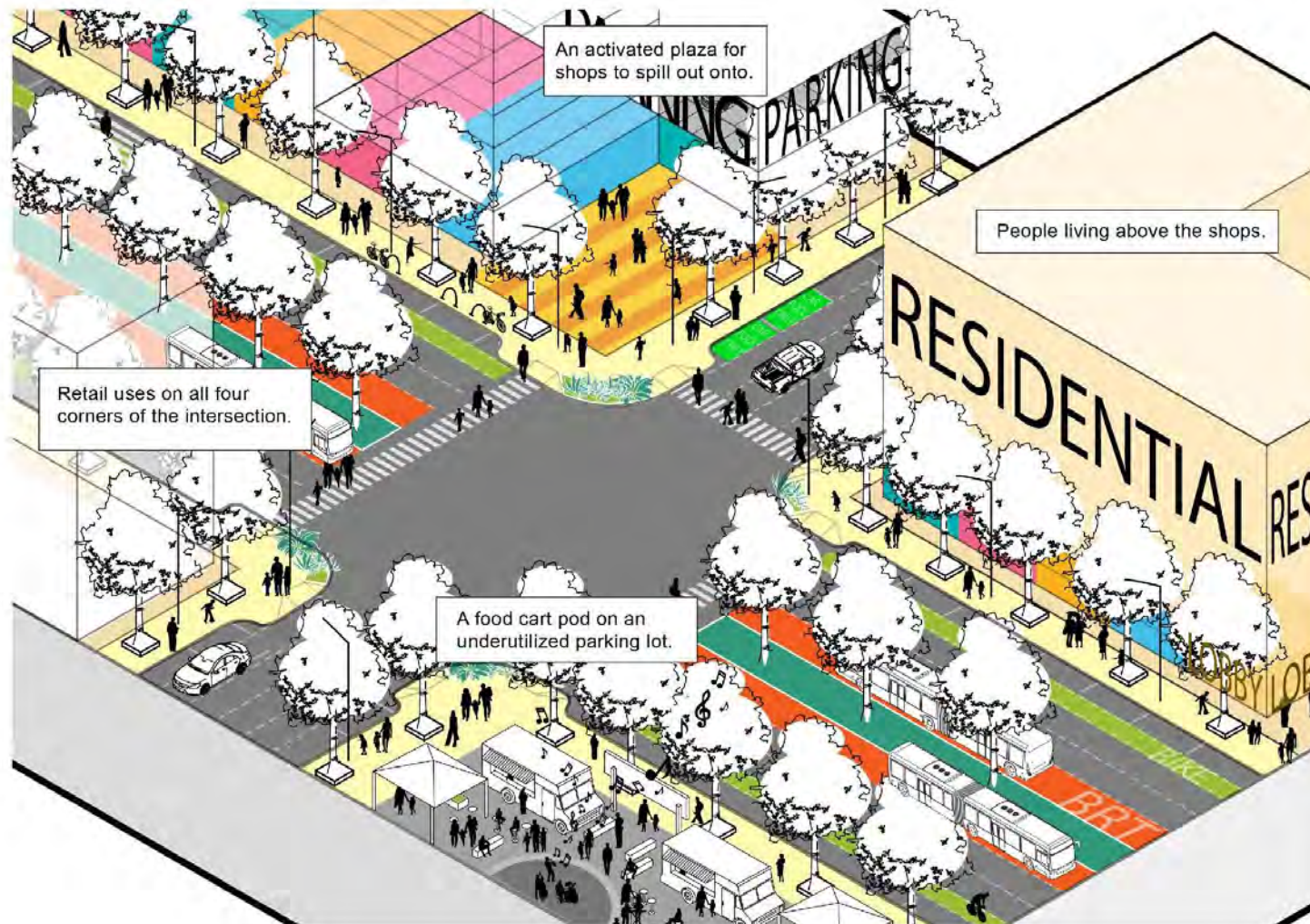
Diagram of a Shared Mobility District from the Downtown San José TOC Playbook

PROPOSED PARKING MAXIMUMS BY STATION

| STATION | MULTI-FAMILY RESIDENTIAL | OFFICE | RETAIL |
|-----------------------------|--------------------------|-----------------------------------|---------------------|
| Downtown San Jose | No parking required | No parking required | No parking required |
| Santa Clara | 0.8 spaces per unit | 1 space per 530-1,000 square feet | No parking allowed |
| 28th Street/Little Portugal | 0.8 spaces per unit | 1 space per 530-1,000 square feet | No parking allowed |

Strengthening Community Identity

Building a sense of community identity can be difficult in a period of rapid redevelopment. Both San José playbooks recommend establishing a maximum block size and minimum open space requirements for large parcels to create more walkable connections within the station areas. The Downtown San José and Santa Clara playbooks recommend concentrating active retail in strategic areas in the short term to create retail destinations as the station areas are built out. The Little Portugal playbook recommends developing the existing strong cultural identity of the station area via branding and cultural events.



Distinct Retail Destination from the 28th Street/Little Portugal TOC Playbook

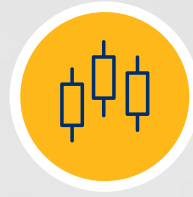
TOD Case Studies



STAKEHOLDER ENGAGEMENT STRATEGIES

Since they have jurisdiction over land use, the Cities of San José and Santa Clara were key stakeholders for VTA in this process. VTA worked closely with the cities in developing the vision for TOC and will continue to work with them on implementation. Though VTA was the grant recipient and provided staff assistance for development of the playbooks, they worked in tandem with staff from San José to develop the playbooks for Little Portugal and Downtown San José and the City supported the end product. Santa Clara was later to come on board but has also been involved with developing the plan for Santa Clara Station.

VTA leveraged public engagement processes that were established for the broader BART Phase II project for engagement on TOCs. VTA has a Community Working Group (CWG) for each station area. VTA engaged the public on TOC issues through 12+ interactive public workshops and 25+ presentations to CWGs. The playbooks themselves were an essential part of the engagement process. The playbooks were intended to present an easily digestible view of what the City could do with the opportunity provided by the BART extension.



ECONOMIC DEVELOPMENT AND FINANCIAL INCENTIVES EMPLOYED

VTA's TOC playbooks recommend capturing value from development near station areas by creating "value capture districts" to help pay for infrastructure and affordable housing. The two primary mechanisms that they recommend are Community Facilities Districts and Tax Increment Financing districts. The project team employed the firm Strategic Economics to estimate the amount of value capture that could happen in the station area without reducing investment.

Community Facilities District

A Community Facilities District (CFD) is a special taxing district formed to finance improvements to public facilities. This funding could be used to pay for access, streetscape, and other infrastructure improvements. VTA estimates that CFDs could generate approximately \$189M in net bonds for station area infrastructure improvements through 2040.

Strengthening Community Identity Tax Increment Financing District

A tax increment financing (TIF) district is a value capture mechanism that redirects incremental increases in property tax revenues that occur within the district to help fund infrastructure, public facilities, or affordable housing. California state law authorizes the use of TIF tools. VTA estimates that TIF districts in the three station areas could generate approximately \$132M in net bonds through 2040 that could be used for necessary infrastructure improvements.

POLICY OUTCOMES ACHIEVED

The TOC playbooks were published in 2019 and late 2020. Over the past few years, VTA has coordinated with the Cities of San José and Santa Clara to align the playbook recommendations with updates to other policy documents:

- » **ENVISION SAN JOSÉ 2020 GENERAL PLAN** - The City of San José updated its Comprehensive Plan shortly after the playbooks were finalized. Staff who worked on the TOC playbooks feel that the City successfully reflected the recommendations for TOC into their updated plan.
- » **FIVE WOUNDS URBAN VILLAGES PLAYBOOK** – The playbook for the Five Wounds Urban Village in the 28th Street/Little Portugal Station area is currently being updated and will be aligned with the station’s TOC playbook recommendations.

San José is also moving ahead with eliminating parking minimums in the city. Though the move is controversial, the City acknowledges that developers may be better positioned to choose the appropriate amount of parking for their building. In an article in the Mercury News, San José planner Jared Hart is quoted saying this approach would be a “move to a market-based approach to ensure parking isn’t overbuilt.” Currently, parking maximums are considered as part of the proposal.



SUMMARY: LESSONS LEARNED

The success of the playbook model is a key lesson from this case study. Project staff felt that the playbook development process and the final playbooks themselves helped to frame TOC issues in an accessible way for policy makers. The development of the playbooks with the heavy involvement of City staff with the VTA team meant that while they were recommendations to the jurisdictions, VTA did not simply dictate an approach for the cities to follow.

The playbooks were also able to respond to and address community concerns around parking, displacement, and character. The recommendations offer clear actions that the jurisdictions could take to shape the station area development in a way that serves the existing community, as well as accommodating future residents and workers.





COMPREHENSIVE CASE STUDY

ST. PAUL CENTRAL CORRIDOR

St. Paul, Minnesota



PROJECT OVERVIEW

The METRO Green Line is an 11-mile light rail line that connects downtown Minneapolis and downtown Saint Paul via the University of Minnesota. The Green Line is operated by Metro Transit as part of the Metropolitan Council, which conducts regional planning for the Twin Cities in Minnesota. During the planning stages of the project, it was known as the Central Corridor LRT (Light Rail Transit) project. 18 new stations were built for the Green Line, which also shares five stations with the METRO Blue Line in downtown Minneapolis. Service began on the Green Line in June 2014.

The Central Corridor is an industrial and commercial area along University Avenue in Saint Paul and Minneapolis. Before the construction and operation of the Green Line, the corridor was characterized by auto-oriented uses like strip malls, drive-throughs, and surface parking, along with some small-scale retail, housing, current industrial uses, and industrial redevelopment. The neighborhoods along the corridor contain low-income areas, immigrant communities, and communities of color.



PROJECT GOALS

- ✓ Create pedestrian-friendly environment
- ✓ Reduce demand for parking
- ✓ Support businesses
- ✓ Enhance sense of community
- ✓ Bolster image of city as a whole.



Map of Proposed Central Corridor Light Rail Transit Line from the Central Corridor Development Strategy

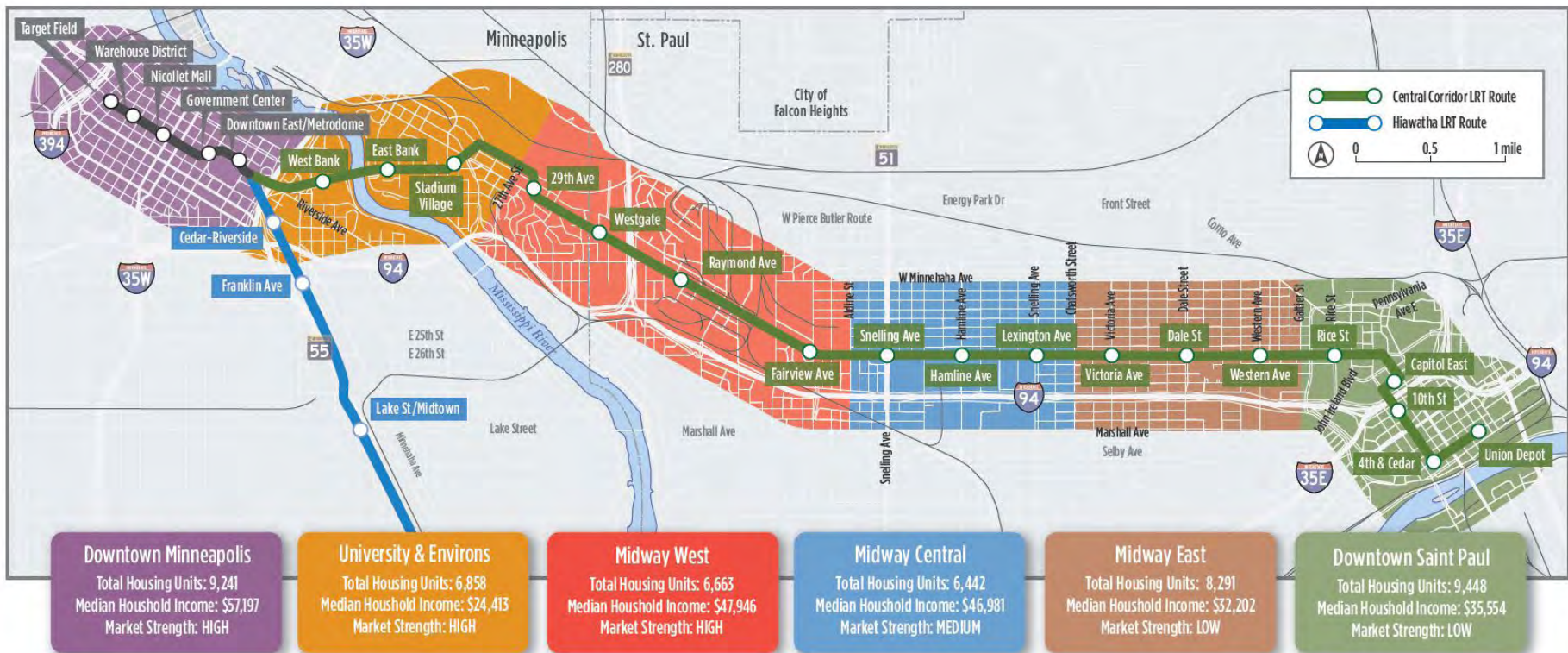
TOD Case Studies

POLICIES

Saint Paul’s foundational work for TOD implementation was the Central Corridor Development Strategy. The City partnered with the Central Corridor Funder’s Collaborative – a group of non-profit service and development organizations whose focus was preservation and development of affordable housing and avoiding displacement of small and immigrant businesses along the Corridor. The Development Strategy carefully examined the scale and economic needs of various corridor segments including the University of Minnesota campus, extensive segments of underutilized industrial uses, blocks of small retail businesses and single family residential, and the Minnesota Capitol area.

The Development Strategy recommended implementation of TOD zoning in two phases. The first was a zoning overlay, which was implemented in 2008 and expired in 2011. It contained a basic set of TOD-supportive land use regulations related to auto use, parking, and density. These regulations were:

- » **No new or expanded auto-oriented uses**
- » **Minimum 1.0 FAR within 1/4 mi of station**
- » **Minimum 0.5 FAR elsewhere in district**
- » **Minimum 2-story building height**
- » **Parking behind or to side of buildings, not in front**



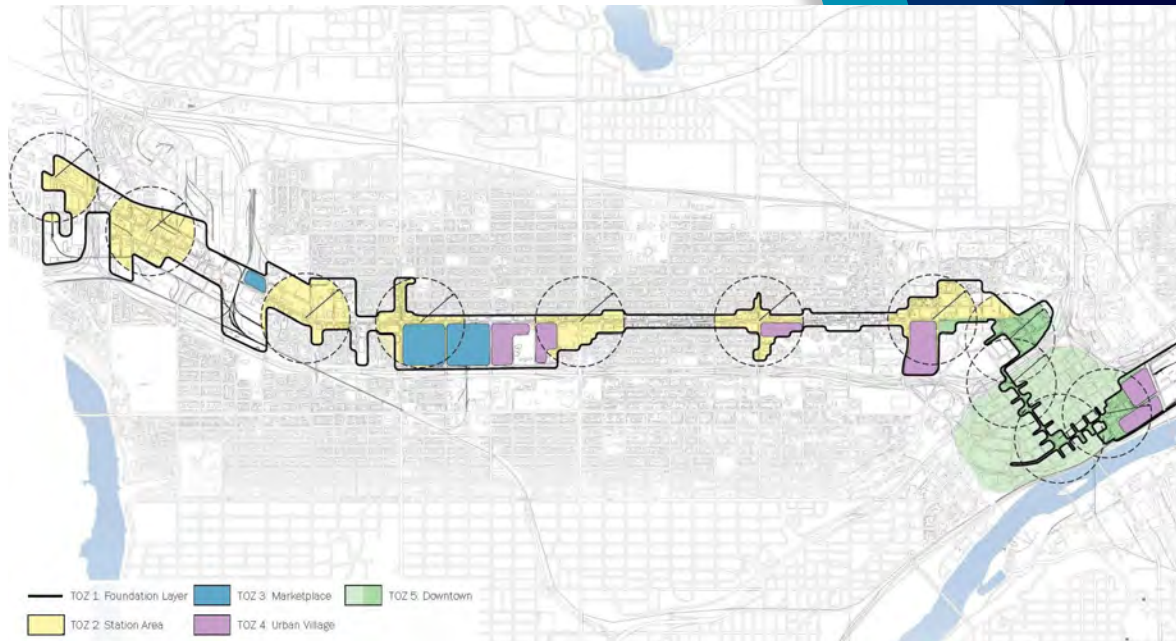
The Six Subareas from the Central Corridor Funders Collaborative



ENGAGEMENT STRATEGIES

The corridor parallels Interstate 94 for much of its length. I-94 was built during the era of urban renewal, and its construction destroyed homes and divided neighborhoods all along its route; consequently, sowing a pattern of distrust in the affected communities. Community members who lived with this legacy were concerned that similar displacement would result from planning and construction of the Green Line. Losing on-street parking was also contentious, and small business owners were worried about impacts to their businesses.

To allay these concerns, engagement activities emphasized investment in the neighborhood fabric and the nature of the Green Line as a community route that would serve neighborhoods, not an express route that would cut through them. Workshops with small businesses were held to hear and address their concerns about parking and access, and a loan program for businesses to improve off-street parking was created. The City of Saint Paul also contributed \$12 million in above-standard landscaping improvements.



Transit Opportunity Zones from the Central Corridor Development Strategy

The final ordinance used rezoning and new zoning categories to shift the corridor towards more transit-friendly uses and to allow buildings from the streetcar era to come into conformance. The ordinance used Traditional Zoning categories T1-T3 and introduced a fourth category, T4, which was applied to areas with more industrial and commercial uses like Midway and Westgate. Rezoning allowed more intense mixed uses, density, pedestrian-friendly design, and reduced or eliminated parking requirements.

Another innovation in zoning was implemented in the industrial area along University Avenue. The Traditional Industrial (IT) district allowed a range of uses similar to the existing Light Industrial district but with stronger design standards and less orientation towards cars.

Along the entire corridor, minimum parking requirements were eliminated within a quarter mile of stations. In the T3 and T4 Traditional Zoning categories, residential parking requirements were reduced by 25 percent. Planners opted not to include any transit-oriented parking, e.g. park-and-rides, along the corridor, as this was not conducive to the community-oriented nature of the line.

TOD Case Studies

AFFORDABLE HOUSING AND DISPLACEMENT

Assisting existing businesses so they could weather construction disruption and the changing neighborhood landscape was a major focus of the project. The Central Corridor Funders' Collaborative led the bulk of this work on the project, providing \$3.9 million in forgivable loans to over 200 businesses, in addition to over \$3 million in loans for business improvement and façade grants and thousands of hours of training and technical assistance to 450 businesses.

The Collaborative produced a report in 2016 to assess the impact of their work. They found that, overall, \$4.2 billion in development projects had been invested in the corridor since 2009. They also found positive outcomes for affordable housing, with 3,573 affordable housing units preserved or created since 2011. Creating these units required collaboration between the public, private, and non-profit groups. The Twin Cities Community Land Bank helped numerous projects hold land while financing was being arranged and the Twin Cities Local Initiatives Support Coalition created an innovative mezzanine loan to get a mixed subsidized and market rate building funded.



New and preserved affordable units*

Central Corridor unit comparison to Big Picture Project Goals, 2011-2015

| | | | |
|----------------------------|---------------|--------------|--------------|
| | new | preserved | |
| Central Corridor | 1,269 | 2,304 | 3,573 |
| | baseline goal | stretch goal | |
| 2020 Corridor Goals | 4,500 | 2,540 | |

**An affordable housing unit is defined by the Metropolitan Council as affordable to a household earning less than or equal to 60% of the Area Median Income.*

Affordable units from The Big Picture Project Progress Report 2016



Central Corridor Funders Collaborative

DEVELOPMENT RESULTS OBSERVED

Hamline Station

The City of Saint Paul partnered with Project for Pride in Living and Excelsior Bay Partners to redevelop a vacant former car dealership into a mixed-used residential and commercial space near the Hamline Green Line station. This project was supported by a \$3.45 million Livable Communities Grant from the Metropolitan Council, which funded land acquisition, soil remediation, and utility line relocation.

The residential portion of the development is made up of 108 units. 14 of these are reserved for formerly homeless and/or disabled people at or below 30% Area Median Income (AMI); the other 94 are reserved for those with incomes at or below 60% AMI. The development also includes ground-floor retail space and nine units of live-work housing.

Challenges led to lessons learned for developers and City staff on this project. Constrained access at the site, which is flanked by busy streets, created issues for construction, and project schedules were driven by delays in low-income housing tax credit funding. Robust communication with neighbors helped alleviate some of the strain that construction put on the neighborhood.



Hamline Station apartments from Central Corridor Funders Collaborative

Vandalia Tower

Seven vacant factory buildings were restored to create a retail, office, and arts campus around a 100-foot-tall water tower known as Vandalia Tower. The project was supported by a \$650,000 Livable Communities Grant from the Metropolitan Council, which funded stormwater management, utilities, and public realm improvements at the site.

The area around Raymond and University Avenues was designated as a Creative Enterprise Zone to keep artists and creative workers employed in the neighborhood, and Vandalia Tower's tenant mix reflects this designation; tenants include artists, engineers, breweries, and marketing firms.

Outdoor space at Vandalia Tower from Northpond Partners



TOD Case Studies



Malcolm Yards/ Green on 4th

Malcolm Yards Market converted an historic industrial warehouse into a food hall featuring local food vendors and created outdoor gathering space.

Nearby the Green on 4th development incorporated stormwater water reuse into the public infrastructure as well as the development itself.



Clockwise from top: The Market at Malcom Yards by Caitlin Abrams, Green on 4th Apartments, and Lake Monster Brewing at Vandalia Tower



SUMMARY: LESSONS LEARNED

COLLABORATION:

- ✓ Collaboration was essential to meet the community goals for the central corridor project. The Central Corridor Funding Collaborative was able to organize and plan the distribution of aid to effected businesses and tracked the success of the measures years later. Numerous organizations worked together to meet the affordable housing goals along the corridor. Much of this work was started well before the tracks were laid.

LAND USE:

- ✓ In order to take full advantage of the light rail investment in the Twin Cities required a paradigm shift to a new kind of development oriented to transit riders rather than cars. However, the entire corridor does not need to change all at once. The planners in Saint Paul found it valuable to delineate areas where mass redevelopment would be targeted, and others where change would be slower and planning would focus on infill and rehabilitation of existing buildings. This approach required looking at the corridor as a whole, with attention on what was best for each station area and how it fit into the wider corridor plan.

DESIGN:

- ✓ Good design was important for the Central Corridor project and it took an early commitment of planning and funds to get it right. Saint Paul increased its base budget for streetscape improvements such as street trees and lighting. Creating a quality pedestrian realm through good design is costly, but it is worth the investment and important to get right up front.

ENGAGEMENT:

- ✓ In collaboration with the City and non-profit partners, the project team went beyond the usually narrow engagement scope of construction mitigation. Businesses were assisted with relocation, reconstruction, and other improvements. Often, community concerns are about more than just that particular transit project. Residents are often already struggling with displacement, disinvestment or a feeling of being forgotten by public agencies. Light rail can also be a start of something much more though. In Saint Paul, the construction of light rail was used as a way to focus efforts to create affordable housing and make essential investments in the neighborhood.

MODEL CODE PARTNERSHIP PROJECT

TOD Case Studies



STATION AREA CASE STUDY

PLEASANT HILL BART

Contra Costa County, California



PROJECT OVERVIEW

Pleasant Hill/Contra Costa Centre is the result of a three-decade transformation of BART surface parking into a mixed-use transit-oriented center. Contra Costa County replaced 1,477 stalls of surface parking with garages, allowing for the redevelopment of the lots into 600 apartments and over 37,000 square feet of retail space.



Contra Costa County Centre from Congress for New Urbanism

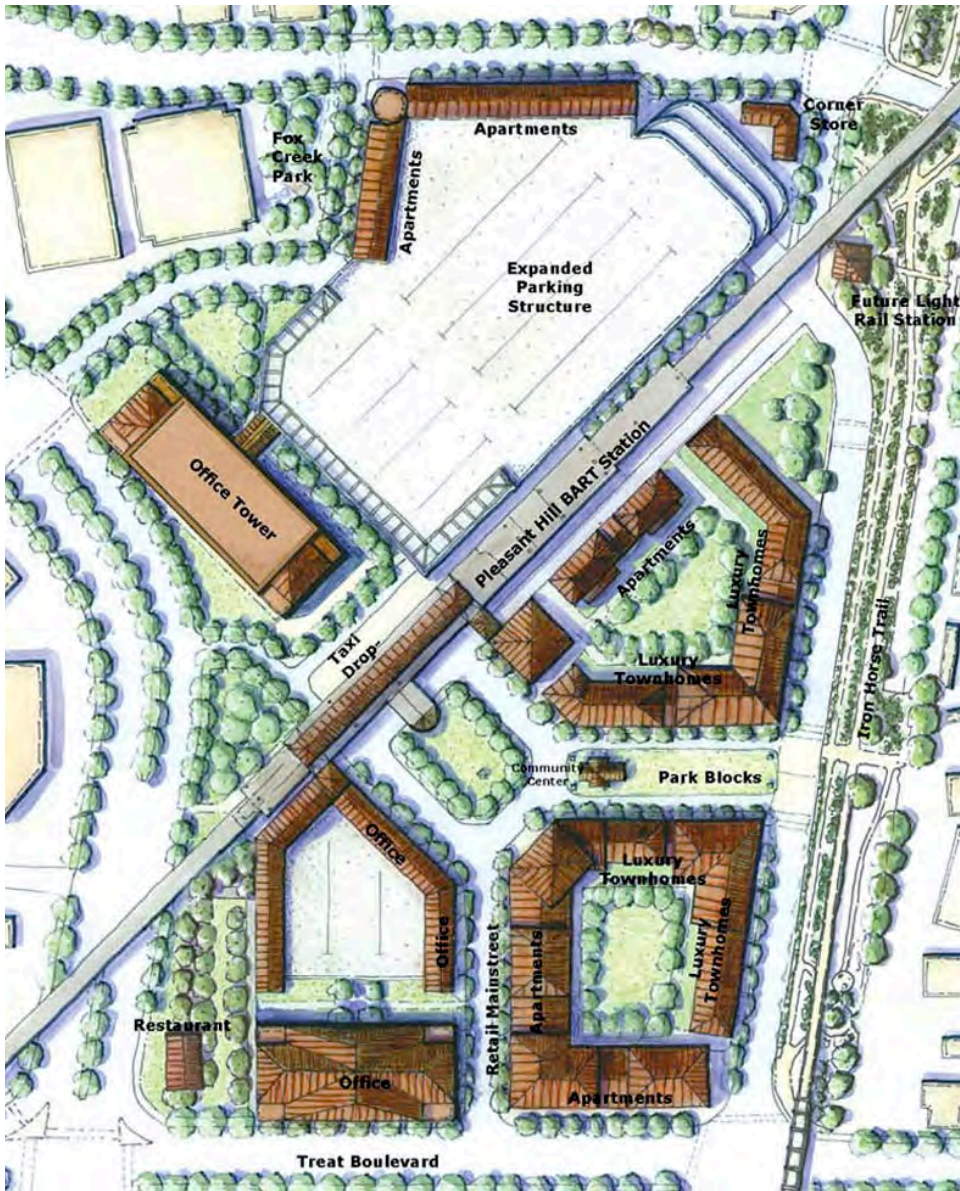
SITE CONTEXT

Pleasant Hill/Contra Costa Centre BART station originally opened in 1973, when much of Contra Costa County was still semi-rural and transitioning to suburban. The station is located on BART's Yellow Line, about 30 miles east of downtown San Francisco. The station area and context is not located in the City of Pleasant Hill but is in unincorporated county land between the cities of Pleasant Hill and Walnut Creek. The surrounding context is largely suburban and single-family housing, and I-680 is just a quarter mile west of the station. In the late 1970s, the station area was converting to higher densities, but the immediate walkshed was still covered by 18 acres of surface parking for BART.



BART System Map with Pleasant Hill/Contra Costa Centre highlighted

TOD Case Studies



Master Plan of the Pleasant Hill Development from Congress for New Urbanism



PROJECT GOALS

Previous attempts to redevelop the BART parking into an entertainment complex had foundered amidst intense community resistance, so the County tried a new approach in 2001. The County decided to run a weeklong intensive public charrette to come up with a financially feasible project that was acceptable to the community. The result was a master plan for a dense, multi-use development on the former BART parking lots that would be consolidated into structured parking.

The final plan for the station at the Pleasant Hill BART station had to balance the goals of the developer, BART, the County, and the members of the local community. The community was reticent about redevelopment at the station and in particular about creating a “destination” that would bring large amounts of traffic to the area. In order to secure financing, the developer required a reasonable return on any investment, which meant including profitable office space and high-density residential components. BART too, desired revenue from any redevelopment of its land, in addition to keeping the same number of parking spots. Uniting these interests around a common vision was a difficult task.

Contra Costa County Supervisor Donna Gerber had recently attended a talk by Peter Katz on New Urbanism and thought that that was the approach needed at Pleasant Hill. New Urbanism, a relatively recent phenomenon at the time, takes inspiration from older pre-war cities, prescribing dense blocks of streets with a mix of uses to enable residents to walk to work or shops. This would ultimately be the core concept around which the development coalesced.

POLICIES

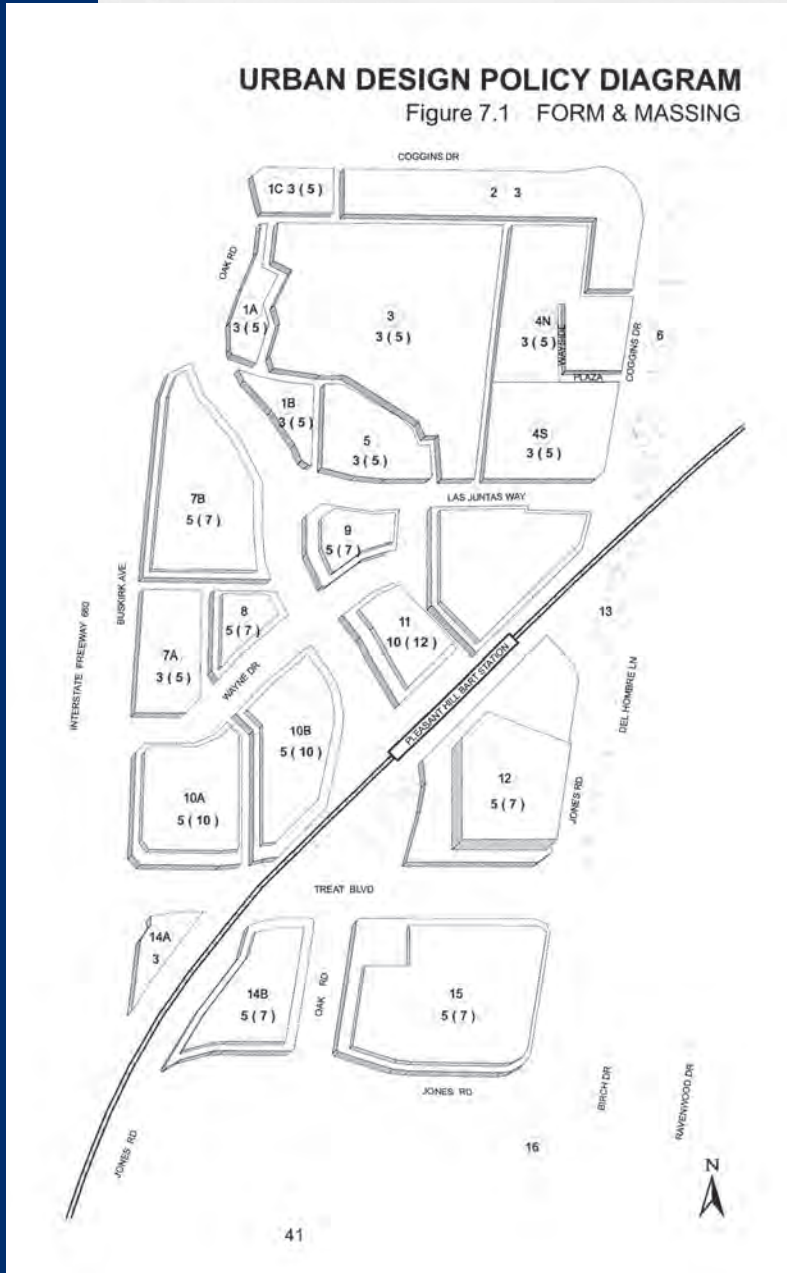
Following the failure of earlier attempts to redevelop the station area, Contra Costa County undertook the development of a specific plan in 1998. The specific plan established a rough outline for the size and uses of future development in the station area. On the BART parking site, the plan requires a mix of uses and explicitly forbids regional retail and entertainment, focusing instead on office, residential, and local retail. Height limits were set between 5 and 12 stories, with stricter limits near adjacent housing and along protected view corridors of Mt. Diablo.

For new development, the 1998 Specific Plan set out minimum and maximum parking ratios. Residential developments were required to provide a minimum of 0.75 stalls per unit and a maximum of 1.5 stalls per unit. Commercial development was required to provide 0.5 stalls per 1,000 square feet of net-rentable area. However, building fewer stalls than the commercial maximum required an approved parking report justifying the need for the lower amount.

The plan provided only a rough outline and no actionable vision for what to do with the BART parking lots. In 2001, Contra Costa County hired Bill Lennertz and his team to lead the community in a six-day charrette to reimagine the future of the station area based on New Urbanist principles.

The charrette sessions were undertaken with the community as well as the master developers for the site, Millennium Partners and Avalon Bay. As the plan had to be financially feasible in addition to being acceptable to the community, the charrette team worked with Strategic Economics to evaluate changes to the design in real time to make sure the final design would be profitable enough for the developer to secure financing, and financially feasible for BART and the County.

At this station, BART required the one-for-one replacement of all the surface parking, around 1,500 stalls in total. In the charrette concept, these spots were consolidated into a 2,000-stall garage paid for by the County, fully replacing the surface parking. This garage was also large enough to replace “temporary” BART parking that had occupied right of way on the Iron Horse Trail, a major community priority. Moving this temporary parking opened the possibility for the trail to be fully used as a multimodal connection. The parking structure, in addition to street parking and another structured garage, was able to accommodate all the necessary parking for the development. The charrette also designed the garage to be ringed by apartments in order to create a residential street on Las Juntas Way.



Pleasant Hill BART - Form and Massing Diagram from the 1998 Specific Area Plan

TOD Case Studies

The consolidation of the parking allowed for the rest of the lots to be developed into a mix of residential, retail, and office uses. The final plan included 522 residential units, 35,590 square feet of retail, 10 live-work units, 290,000 square feet of office, and 20,000 square feet for a business conference center. In addition, the final design included a new civic square and several new roads including a connection to the Iron Horse multi-use trail providing greater access to BART and a finer block structure. This mix of uses followed the rough outline provided by the 1998 specific plan, ameliorating community concerns.

Another important community goal addressed in the charrette was to give the new development a unique character. The charrette team developed a form-based code for the development, and an urban design style that responded to the surrounding character as well as other popular centers in nearby Pleasant Hill and Walnut Creek. The architect who designed the code was also hired by the developer to oversee its eventual implementation.

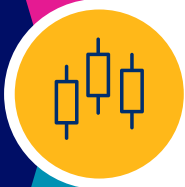
The form-based code was enabled by the designation of the area as a Planned Unit District. When the original specific plan for the area was developed, most of the station area had its density increased, but the 18 acres of BART parking were left as their former zoning designation in the interim. With the approval of the charrette plan, the area was rezoned to Planned Unit District, which allows for extensive flexibility in the code requirements and an experimental approach to redevelopment within the station area.



Aerial illustration of the development in context from the Charrette Report



Street-level view of Station Square showing the improved BART station, retail shops, and office beyond from the Charrette Report



ECONOMIC DEVELOPMENT/FINANCIAL INCENTIVES

The requirement of one-for-one replacement of the existing BART parking was the biggest barrier to redevelopment in the station area and it could only be accomplished with significant public investment. In addition, the County had to come up with funding for roadways and other public utilities required by the redevelopment. These investments were paid for by TIF leveraged by the Contra Costa County Redevelopment Authority.

Redevelopment authorities are now defunct in California, but they were able to leverage the growth in property tax revenues to fund bonds for infrastructure investments. In Pleasant Hill, the redevelopment agency was able to bond based on a tax increment on the entire 125-acre station area to fund the creation of the parking garage and other public utilities. In total, the County contributed \$60 million to the project.

The development also generates substantial public benefit as well. In addition to new tax revenue provided by the more intense use and new public spaces, the project provides a steady revenue stream to BART in the form of lease payments. BART has prioritized ground leases in redevelopments of parcels it owns for this reason.



STAKEHOLDER ENGAGEMENT

Stakeholder engagement was a critical element of the Pleasant Hill BART redevelopment. The decision to use a charrette approach was itself a response to rejection of earlier development proposals. The use of the charrette process, as opposed to the more traditional approach of the specific plan, allowed for community priorities to be incorporated into the development while still ensuring financial feasibility for the project. Community priorities could be addressed and negotiated in a flexible process and facilitators were able to bring traffic and economic data to explain the rationale for certain compromises.

At the time, the concepts introduced by the charrette were brand new, but the public was brought onboard with the new vision for the station. Charrette leaders were able to explain to members of the public concerned about development and traffic that growth was coming to Contra Costa County and that the station area was the best place to accommodate it. The site had excellent transit access via the BART station and was located right next to I-680, the major north-south corridor of the County. The neighborhood's views of Mt Diablo would also be better preserved if growth happened in the station area, and not on the urban fringe. When the charrette produced a plan with community buy-in, it was approved by the County and BART with community support.

TOD Case Studies

The transformation of Pleasant Hill BART from the Pleasant Hill BART Leasing Authority

PROJECT OUTCOMES

The resulting development has largely followed the master plan developed in the charrette and fulfilled expectations. The completed phases of the development provide 422 rental housing units (20% affordable housing), 35,590 square feet of retail, a replacement parking garage, and a new intermodal hub. 200 units of market-rate rental housing and 2,300 square feet retail are currently under construction and a further phase of development is entitled as a 12-story 290,000 square foot office or hotel development.

The development has also lived up to the TOD promise of converting car trips to more sustainable modes. A 2008 survey found that the more than 30% of BART riders at the station accessed it by a mode other than driving alone. In particular, the station is a very popular bike connection, with easy access to the Iron Horse Trail which includes a grade separated crossing of the busy Treat Boulevard. The County has additional plans to improve the hostile I-680 crossing on Treat Boulevard, opening up access to areas west of the interstate.

Transportation Demand Management strategies also play a major role in promoting alternatives to car travel. The Contra Costa Centre Transportation Demand Management Program is funded by an assessment on businesses in the area and funds a variety of transportation efforts with a \$200,000 budget. The program provides ongoing funding for TDM programs, including discounted BART and bus passes and incentives for carpooling, biking and walking to work as well as shuttle service within the neighborhood.

Land Use Comparisons
Pleasant Hill Transit Village • Walnut Creek, California

2006 Pleasant Hill BART Station

- Where you go to catch BART
- Where you go to park your car

2013 Pleasant Hill Transit Village

- A place to live and work
- A place to gather and meet friends
- A place to window shop and dine
- A place to catch mass transit
- A place to vote
- A place to walk and bike
- A place to also park your car



Pedestrian bridge over Treat Boulevard from Congress for the New Urbanism Case Study



SUMMARY: LESSONS LEARNED

Stakeholder engagement was critical to the success of the project. Bill Lennertz, who led the charrette team, credits their success to on the ground in-person engagement. Bill and his team identified key community leaders and developed relationships and brought them onboard with the planning process. By bringing these community members on board, they were able to take ownership of the project. In addition to community connections, the project had major champions in the County, Supervisor Donna Gerber and Redevelopment Director Jim Kennedy.

While it was ultimately funded, replacing the BART parking was costly and still occupies a significant portion of the station area. According to a later case study prepared by the Institute of Transportation Engineers, the cost of the replacement parking completed in 2006 was 50% more than the value of the property it freed up. Such costs make redevelopment proposals that also preserve parking infeasible. BART has since updated its policies and is more flexible with replacement parking, at least at stations with more urban settings.

Public agency involvement was essential to fund these investments and assemble parcels. The significant cost of the BART parking replacement and the supporting infrastructure for the development had to be borne by a public agency, the economics did not make sense for a private developer. Though few parcels were acquired through eminent domain, the redevelopment agency was a key player in assembly of the lots necessary in the broader station area.



STATION AREA CASE STUDY

ALAMEDA STATION

Denver, Colorado



PROJECT OVERVIEW

Completed in 2015, The Denizen was one of four TOD demonstration projects initiated by Denver RTD. The City of Denver adopted the Alameda Station Area Plan in 2009, which encouraged rebuilding the original street grid system throughout the area to foster better connections between the station and the surrounding neighborhood. Owners of the Broadway Marketplace shopping center and the Denver Design District worked with the City to develop a general development plan for the area and design criteria for future buildings and infrastructure. In 2010, RTD named Alameda Station one of four TOD pilot projects. In 2015, the Denizen development, also referred to as Alameda Station Village or the Alameda Station Pilot Project, was completed by the developer D4 Urban.

Scale

The Denizen replaced the existing RTD park-and-ride with a mixed-use development, including 275 units of housing and ground-floor retail. The building is built to a LEED Platinum standard, and 30 of its 275 parking stalls are built so they can be converted into 7,000 square feet of ground floor retail in the future. In addition to the development, the project included building a new transit plaza and bus turnaround and a reconnected street grid between Dakota and Cherokee Streets. The Denizen was the first major redevelopment near Alameda Station and it was intended to catalyze development throughout the half-mile station area.



The Denizen, with Alameda Station from D4



The Denizen from D4

TOD Case Studies

Site Context

Denver's Alameda Station was part of the original Central Corridor Light Rail Line that opened in 1994. It is located roughly five miles from downtown Denver and sits directly next to the Consolidated Main Line freight rail corridor. The area had been redeveloped in 1992 by the Denver Urban Renewal Authority (DURA), partially funded by \$16 million in bonds backed by a sales tax increment, into a 420,000 square foot auto-oriented retail center. Further east from the station, Broadway is still a healthy retail street and is surrounded by dense single-family home neighborhoods.

The station is almost completely cut-off to the west by the freight rail corridor. The closest crossing of the tracks is an underpass on Alameda Ave, nearly a quarter mile north of the station. The land between the rail tracks and I-25, which follows the Platte River, is auto-oriented commercial. One site was the location of a former RTD bus barn that was no longer in use.

Alameda was the second farthest station from downtown Denver when it opened, and it included significant parking and operated primarily as a park-and-ride and bus transfer station. After the expansion of light rail to the southwest and southeast, Alameda transitioned from a fringe station on the edge of the system to a trunk line station with combined service from RTD's C, D, E, F light rail lines. With this change in the character of the station, it was in a prime position to redevelop.



Aerial view of Alameda and Broadway Stations. Redevelopment area outlined in red from D4



PROJECT GOALS

The 2009 Alameda Station Area Plan sought to:

- ✓ **INCREASE THE DENSITY** of the surrounding area
- ✓ **DEVELOP IT INTO A DESTINATION** with its own sense of place

Objectives for the plan included:

- ✓ **CREATING A STRONG VISUAL CONNECTION** to Alameda Station
- ✓ **PROVIDING A MIX** of housing options
- ✓ **EXTENDING THE STREET** into the area directly around the station.

Prior to the opening of the Denver, RTD had little experience with developing TOD on its property near stations so the project was also about building agency capacity as well as catalyzing development in the station area.

SPECIFIC POLICIES

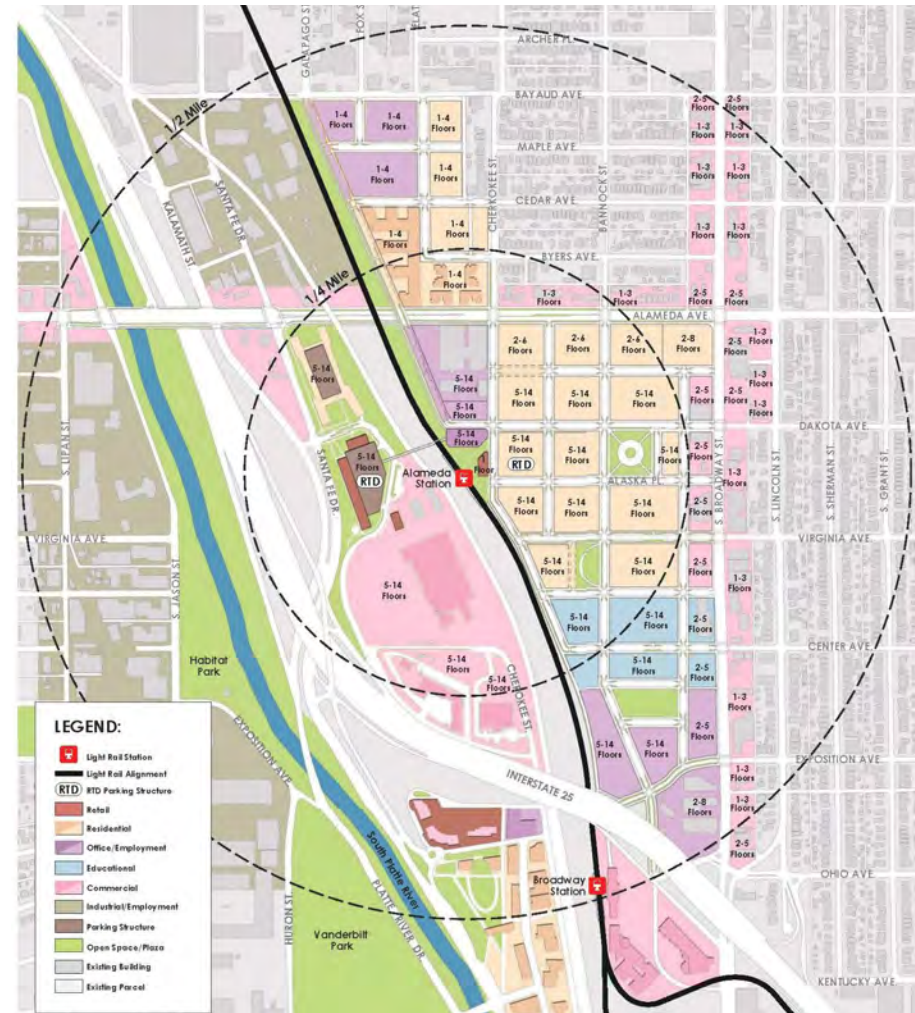
RTD and Denver worked with D4 Urban as a master developer to transform the station area. Between 1996 and 2010, D4 had come to own much of the roughly 75 acres in the area between Alameda Station and Broadway Station just to the south known as the “Denver Design District” and were interested in redeveloping the area into TOD. Denver, RTD, and D4 worked closely together to develop a shared vision of the area. In addition to the Station Area Plan, D4 and Denver agreed on a General Development Plan that laid out a more detailed vision for how the station area should be redeveloped.

In 2014 a deal with RTD, D4 acquired a 300-stall park-and-ride at Alameda Station, the lot that would eventually become the Denizen. As part of the deal, D4 provided easements on the new streets (previously they were private land) for RTD buses, constructed a new transit plaza, and agreed to lease 100 parking spaces to RTD to for park-and-ride use.

Planning for the Alameda Station area was initially undertaken in the 2009 Station Area Plan. Other plans include the Denver TOD Strategic Plan, developed in 2014, and Denver Moves: Pedestrian and Trails from 2019 is a framework for prioritizing future active transportation projects in Denver. The general development plan and urban design standards established what the developer was required to build.

Alameda Station Area Plan, 2009

The land use section of the plan called for office/employment uses, 5-14 floors high, immediately adjacent to the station and 5-14 floors of residential with ground floor retail east of the station, tapering to 2-5/6 floors towards the existing retail on Broadway and the single-family neighborhood on the north side of Alameda Ave. While the plan includes a pedestrian crossing to the west side of the rail tracks, development planned between the rail tracks and I-25 is limited in the plan, including some retail, parking structures and commercial uses without changes to the street grid.



TOD Case Studies

New streets are a key component of the mobility element in the station area plan. The plan called for the old station area's large blocks to be broken up with new streets to create a tighter grid that shortens walk trips and breaks up large buildings. The plan envisions Dakota Avenue as the gateway to the station area and an active retail street with enhanced pedestrian amenities.



*New and Enhanced Streets
Concept from Alameda
Station Area Plan*

The Alameda Station Area Plan includes implementation strategies for the policies, split into regulatory, investment, and land use tools and either a long- or short-time horizon. Since the station area plan was developed while Denver was simultaneously updating its zoning code to move to a form-based model, most of the regulatory strategies are for the land use policies and were determined to be short term actions to coordinate with that process. These strategies and policies include zoning for a mix of housing densities, requiring or incentivizing ground floor uses, reducing required parking, developing form-based regulations requiring defined street walls and transitions from higher to lower density areas, and eliminating regulatory barriers to sustainable practices.

| REGULATORY TOOLS FROM ALAMEDA STATION AREA PLAN | | | |
|--|--|-------------------|--|
| Recommendations | Implementation Strategy | Time-frame | Key Responsibility |
| Land Use Mixture and Affordable Housing LU-1 thru 10 | <i>Current zoning is primarily B-4 and Industrial. Evaluate alternative zoning districts that allow the recommended mix of land uses. Coordinate with the New Zoning Code to ensure there is a menu of zoning districts that promote this mixture. Eliminate barriers to affordable housing such as an improved review process, parking reductions, form-based regulations rather than use-based.</i> | Short | Community Planning & Development (CPD) |
| Ground Floor Uses LU-9 thru 10 | <i>Existing mixed use districts do not offer incentives or mandates for mixing uses or requires ground floor commercial or retail. Concentrating and allocating commercial and retail within the station area is essential to creating a vibrant successful station. Coordinate with the New Zoning Code to create incentives.</i> | Short | CPD |
| Parking Ratios LU-8 MO-13 thru 16 | <i>Coordinate with the New Zoning Code to incorporate different techniques for regulating and designing parking facilities.</i> | Short | CPD |
| Active Edges, Build-To Lines and Building Heights LU-11 thru 15 | <i>Coordinate with the New Zoning Code to develop form-based regulations that mandate a predictable scale and form. For example, the form standards should require active edges along main streets that promote active uses and frontage types. Build-to-lines create a defined street wall. Transition in heights with 1-3 stories on edges and the greatest height of 14 stories closest to the Alameda and Broadway stations.</i> | Short | CPD |
| Sustainability LU-16 | <i>Eliminate regulatory barriers in the new Code to sustainable practices.</i> | Short | CPD |
| Complete Streets MO-1 thru 6 IN 1-8 | <i>Work with PW on new Right-of-way cross sections that are specific to station areas in accordance with adopted plans and accommodate vehicle, bike, pedestrian and bus mobility.</i> | Long | Public Works (PW) |

TOD Case Studies

| INVESTMENT TOOLS FROM ALAMEDA STATION AREA PLAN | | | |
|---|---|------------|--------------------|
| Recommendations | Implementation Strategy | Time-frame | Key Responsibility |
| Galapago Bicycle/ Pedestrian Path and Elati Bridge MO-8; IN-5 | <i>Public Works and Community Planning and Development should collaborate to obtain funding for this bicycle/pedestrian improvement. It is a short term priority because it is essential to station connectivity and accomplished independently of future development projects.</i> | Short | PW/CPD |
| Cherokee Street Off-Street Bike/ Pedestrian Path MO-9 and 10; IN-4 | <i>PW and CPD should collaborate with property owners to obtain funding for this off-street bicycle/pedestrian improvement. It is a short term priority because it is essential to station connectivity and accomplished independently of future development projects.</i> | Short | CPD |
| Enhanced Bicycle Routes MO-6 | <i>On-street bicycle route recommendations are consistent with the Bicycle Master Plan. Therefore, there is additional reinforcement and support for these improvements. Pursue funding opportunities to provide enhanced bicycle routes on designated streets.</i> | Long | PW |
| General Bicycle Facilities MO-7 | <i>As the station area redevelops there will be a need for bicycle facilities. As funding becomes available, provide additional bike racks and storage lockers at the station. Upon full build-out consider whether there is demand and funding for bike services such as rentals and locker rooms.</i> | Long | PW |
| Alameda Avenue MO-8; IN-6 | <i>Alameda has a varied cross section and implementation of the desired section will occur in phases. The priority recommendation is the separated bike/ped route as Alameda Avenue is improved.</i> | Long | PW |
| South Broadway IN-7 | <i>The recommendation cross section for S. Broadway is not a dramatic change from the current section. As new development is proposed or if there are street improvements, there should be gradual implementation.</i> | Long | PW/Private |
| Bayaud Bridge MO-10 | <i>The bicycle/pedestrian bridge is a recommendation of the Valley Highway Environmental Impact Statement (VHEIS). Therefore, there is additional reinforcement and support for this improvement. Pursue funding in conjunction with VHEIS improvements.</i> | Long | PW |
| Santa Fe to Jason Bridge MO-10 | <i>Consider long-term opportunities and funding</i> | Long | PW |

The implementation strategies under “investment tools” are publicly funded investments in bike and pedestrian infrastructure in the station area. These investments include: an additional bike and ped crossing of Alameda Ave on Galapago St; a new bike and ped bridge over I-25 and the South Platte River; and new or enhanced bike and pedestrian facilities on several streets throughout the station area.

The final set of strategies, titled “partnership tools,” include collaborations with public and private groups to implement a variety of policies. The strategies call for collaboration with public agencies such as the Department of Parks and Recreation, RTD, and the Office of Economic Development to secure funding for affordable housing, provide relocation assistance to displaced industrial employers, and implement open space recommendations, and future plans for RTD facilities and bus operations. Additionally, the plan calls for collaboration with developers and public works on stormwater infrastructure, and specifies that Alameda Station Bridge, connecting to the west side of the rail tracks, will be funded and constructed by the developer of the bus barn site.

| PARTNERSHIP TOOLS FROM ALAMEDA STATION AREA PLAN | | | |
|---|---|-------------------|------------------------------|
| Recommendations | Implementation Strategy | Time-frame | Key Responsibility |
| Business Recruitment, Retention, & Relocation LU-1 thru 10 | <i>As the station area redevelops there are existing industrial uses that are not consistent with the plan’s land use recommendations. Office of Economic Development (OED) can play a pro-active role is assisting these businesses in relocating to a more desirable site within the city. Additionally, OED should play an active role in recruiting and retaining businesses consistent with this plan.</i> | Short | OED/CPD |
| Affordable Housing LU-1 | <i>Partner with OED to seek funding opportunities for affordable housing.</i> | Short | OED/CPD |
| Alameda Station Bridge MO-10 | <i>This bike/ped bridge will be installed and funded by the developer of the “Bus Barn Site”. CPD needs to collaborate with the developer to ensure that placement of the bridge optimizes access to the station and future development near the platform.</i> | Short | CPD/Private |
| Parks Development LU-5 MO-8 thru 10 | <i>Many of the mobility recommendations and recreation/open space recommendations offer park and recreation benefits. For example, the off-street pathway along Cherokee will enable access to the South Platte River Greenway and the park system along the greenway. As these recommendations move forward, the parks Department must be involved in the early stages to maximize benefits. It is also important to collaborate with Parks on ways to ensure existing parks can meet demands.</i> | Short | CPD/Parks/PW |
| Parking MO-13 thru 16 | <i>Inform the strategic parking Plan with the parking strategies identified in this plan.</i> | Short | CPD/PW |
| Sustainability LU-16 | <i>Collaborate with Greenprint Denver office on opportunities for sustainable practices at the station.</i> | Long | CPD/Greenprint Denver |
| RTD MO-11 & 12 | <i>There are some recommendations that are under the authority of the regional Transport District (RTD), not the City and County of Denver. In those cases it is important to be an active partner with RTD and work together to achieve the plan recommendations as feasible. Specifically, this includes recommendations on the park-N-ride, platform open space, and bus circulation changes at the time for redevelopment.</i> | Long | CPD/PW/RTD |
| Business Associations | <i>Historically, along S. Broadway, business marketing, recruitments and streetscape improvements have been primarily implemented by business organizations. These groups will continue to play an active role and should continue to collaborate as new development occurs.</i> | Long | CPD/PW/Private |
| Fire Department IN-1 thru 7 | <i>As projects move forward, collaboration with the Fire Department is necessary to ensure fire safety regulations are met. In some cases the basic minimum requirements should be re-evaluated in order to reflect the urban context of the Alameda Station area.</i> | Long | CPD/PW/Fire |
| Stormwater IN-8 | <i>Collaborate with developers, PW & Greenprint Denver</i> | Short | CPD/PW/ Greenprint Denver |

Transit Oriented Denver: Transit Oriented Development Strategic Plan, 2014

Before the completion of the Denizen project, Denver updated its strategic plan for TOD within the City and County of Denver. The plan was intended to serve as a guide for public and private investment at rail stations by categories: downtown, urban center, general urban, urban, and suburban. These station typologies provided a vision for the type and style of development in the station area including land use, block pattern, building placement, and height. Alameda and nearby Broadway stations, are both classified as “urban center” stations, meaning they are planned to be a destination for surrounding neighborhoods with a strong employment and commercial center in addition to high density housing.

To achieve the TOD vision, the Transit Oriented Development Strategic Plan includes a station evaluation methodology which places station areas on a continuum and prescribes action items to move station areas along it. Station areas are evaluated based on market readiness, development potential, and transit-oriented characteristics and are placed on a continuum from “strategize” to “energize.” Strategize includes pre-development and planning for station areas that are not ready for TOD, often because rail projects that will serve them are not yet complete, whereas Energize station areas are already experiencing healthy TOD investment. Alameda is categorized as a “catalyze” station area, the middle stage for stations that require infrastructure or amenity investments; the strategic plan posits that this station will likely move to “energize” once major stormwater investments are completed, but that change to its designation has not been enacted.

GENERAL DEVELOPMENT PLAN AND URBAN DESIGN STANDARDS AND GUIDELINES 2009

The General Development Plan, which established building heights, the location of open spaces, new streets, and allowed land uses, was done concurrently with the station area plan. Notably, the GDP only covers the area on the east side of the station between Alameda Avenue and Broadway Street, a smaller area than the station area plan. The vehicular circulation plan requires that the future Cherokee, Bannock, Dakota, Center, and Exposition streets be conveyed to the City of Denver as public right of way and also lays out the position of several private connections through existing parcels. Building heights in the area are set to between 2-14 stories and between 2-8 and 2-5 in transition area surrounding the development area.

These concepts were further elaborated on in urban design standards. The guidelines included additional design requirements for facades, entrances, parks, and streets including sidewalk width and design. Special attention is paid to the streetscape on Dakota, Bannock, and Broadway including build-to zones and a requirement that 75% of the ground floor frontage be occupied by “pedestrian active uses” such as retail or commercial.



Open Space Concept from
the General Design Plan

Form Based Code

Following the development of the Alameda Station Area Plan, Denver overhauled its zoning code in 2010, adopting a form-based code, updated most recently in 2021. The code determines what can be built and how, based on the context and form in the zoning district. Most of the area around Alameda Station is designated as Urban Center for context, and mixed-use with heights of up to 16 stories. The new code includes lower requirements for required parking but does not include any parking maximums.

REQUIRED PARKING

Residential

- **Multi-Unit - 0.75/ dwelling unit**
- **Single Unit – None**

Commercial

- **Retail and Entertainment – 2.5/1,000 sf GFA**
- **Office – 1.25/1,000 sf GFA**



Dakota Outfall under construction from D4

INFRASTRUCTURE INVESTMENTS

Prior to redevelopment, significant stormwater infrastructure had to be constructed in the station area to mitigate significant flooding that regularly occurred in the area. In order to fund this project, D4 convinced DURA to continue the TIF that had been established to fund the 1992 redevelopment of the area that was set to pay off the bonds in 2012 but could continue to collect funds until 2017. The extension of the assessment helped cover the project's \$21.5 million price tag.

The local Metropolitan District, Broadway Park North No. 1, was also a partner in the project. Metropolitan districts are a type of special district in Colorado that property owners establish, funded by a property tax assessment. Metropolitan districts can finance, construct, and maintain infrastructure by issuing bonds backed by property taxes.

The project included not only the drainage pipe, but the reconstruction of the streetscape. According to a write-up of the project in Green Building & Design magazine, this required the relocation of 8,000 square feet of retail and three retail tenants. The public private partnership allowed for the use of eminent domain and public relocation assistance. The total project included not only 4,000 linear feet of stormwater infrastructure draining 1,700 acres, but also the reconstruction of Dakota Avenue, including reconnecting it to Cherokee Street and Alameda Station as envisioned in the Alameda Station Area Plan.

TOD Case Studies



STAKEHOLDER ENGAGEMENT

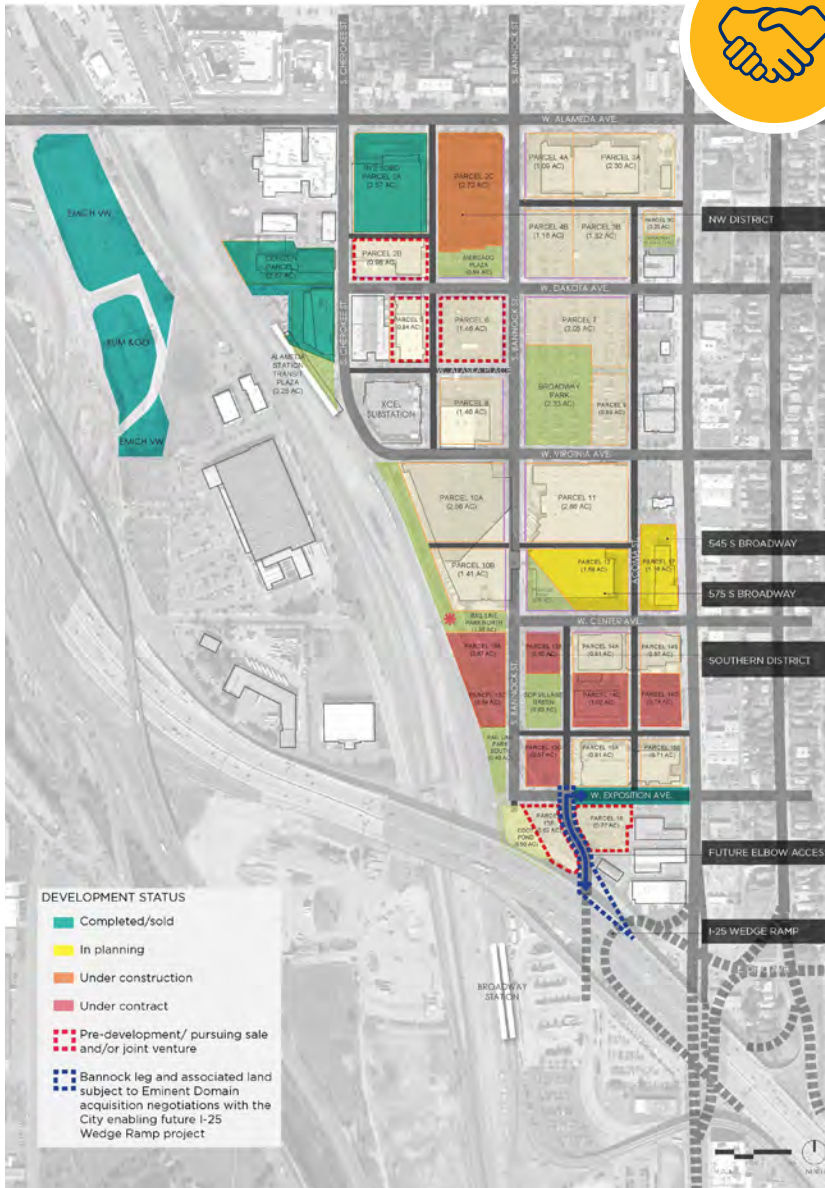
Denver worked closely with the public while developing the Alameda Station Area plan, including three public workshops. Public engagement or controversy were not raised as major concerns in the case study interviews. The station area is largely owned by D4 and the established residential neighborhoods and commercial corridors were not altered as part of the plan. Within the development area, some parcels are not controlled by D4 and have resisted selling. In addition, several of the commercial businesses in the area came with decades long leases, posing similar challenges.

OUTCOMES ACHIEVED

The Denizen development was completed in 2015 and development progress has taken off throughout the station area in the years since. D4 is currently constructing three more buildings on the former Kmart site, across Cherokee Street from Denizen. The project, Broadway Park, will include an additional 1,000 apartment units and 30,000 square feet of retail as well as a new street connecting Alameda and Dakota Avenues, as envisioned in the station area plan, and a half acre public plaza and streetscaping. Just south of Broadway Park, D4 is in pre-development in two more parcels. Though Denizen was developed with a uniquely low ratio of 1 parking stall per unit, D4 said that going forward they were being more conservative, sticking to a ratio of 1 stall per bedroom.

RTD considers the project a success, though direct ridership outcomes from projects like this are difficult to measure. Since 2013, Alameda Station has seen a 1% decrease in ridership, compared to 6-16% decreases elsewhere in the system. According to a survey, 44% of residents at Denizen use RTD light rail "frequently" or "daily." With the pandemic reducing park-and-ride demand, RTD was able to end its lease of 100 parking spots in the station area and is confident that future phases of development will contribute further to ridership at the station.

Development on the west side of the station has been more challenging. The initial plans for the area west of the station called for the construction of a pedestrian bridge to connect it to the station area to allow further mixed-use TOD. However, the cost of the pedestrian bridge was difficult to justify given the development potential and D4 instead developed the land as a car dealership and a gas station. The area, wedged between freight rail tracks on one side, and I-25 on the other, is a challenging setting for TOD and is accessible only by freeway, or the pedestrian-hostile Alameda Avenue.



Phasing plan as of Fall 2021 from D4



SUMMARY: LESSONS LEARNED

Alameda Station provides an example of the advantages of a single large landowner working with public agencies on a collective vision. The waning fortunes of big box retail sites also allowed for the opportunity to create property assemblages and redevelop large blocks of land into a much denser grid of mixed-use buildings. However, even with those favorable factors, it still took significant coordination and creative use of financing tools to succeed.

Chris Wagget, the CEO of D4 Urban, attributed the success of the project to the strong vision and public leadership. His company was able to take a longer view and effectively bank the land in the station area and collect revenue from current tenants while they waited for more optimal market conditions. Chris saw the Denizen as a key early win to catalyze further development by showing what a successful project could do. What a developer can't do is underwrite the cost of infrastructure improvements or use eminent domain, which were critical in enabling the redevelopment.

The RTD staff we spoke to were overall satisfied with the project but thought that they may have sold too much land and should have instead leased. Another point they made was that while buildings can stand for a long time, future redevelopment is always a possibility. Other stations in the RTD systems such as Anglewood, initially developed at a lower density and are now being redeveloped. Alameda Station itself was of course "redeveloped" in 1992 and is now in the process of being transformed once again. Though the developments come and go, the infrastructure is a permanent investment.

MODEL CODE PARTNERSHIP PROJECT

TOD Case Studies



STATION AREA CASE STUDY

ORENCO STATION

Hillsboro, Oregon



PROJECT OVERVIEW

The Platform District is the Portland region's highest performing TOD outside of the central city. The development builds on previously successful TOD projects going back to the station's opening in 1998 adding over 1,200 residences and 60,000 square feet of commercial space to the 237-acre station area. The Platform District improved on earlier TOD by increasing density, lowering parking ratios, and creating tighter more urban scale public spaces.

Site Context

The station is located 15 miles west of downtown Portland in the City of Hillsboro. The city has long been the heart of Oregon's "Silicon Forest," with companies such as Intel employing thousands in high-tech manufacturing and development. The surrounding neighborhood character is largely suburban, with single-family housing, auto-oriented retail, and business parks. Intel's largest manufacturing center is less than a mile north of the station, and the company's Hawthorn Farm campus, immediately west of the Orenco Station neighborhood, is at the next station to the west on the Blue Line. The private sector led development in the Orenco Station neighborhood, but the City of Hillsboro and TriMet, the transit agency that serves most of the Portland metropolitan area, used planning interventions to steer development including CMAQ and traffic impact funds for infrastructure. The station is roughly a 40-minute ride on the MAX Light Rail from downtown Portland.



Platform District Project Rendering from Holland Partner Group

TOD Case Studies

History of the Project

TriMet approved the 6.2-mile westside light rail extension to downtown Hillsboro running through Orenco Station in 1993. Commitments for higher residential densities around new light rail stations along that extension were a condition of the \$75 million in federal funding for the project approved by the U.S. Congress. Early phases of TOD in the Orenco Station neighborhood, over one quarter mile north of the light rail station were developed in the latter half of the 1990s by PacTrust in partnership with Costa Pacific as a planned unit development, including a mix of apartments and single-family homes along with a retail Town Center. Early phases of development set the stage for TOD closer to the Orenco MAX station, with planning innovations that were leading-edge at the time including narrower streets, maximum setbacks, accessory dwelling units, live/work spaces, and alley-loaded garages.

In the 2000's development continued to progress south of these early phases of TOD, drawing closer to the Orenco light rail station. The Holland Partner Group began phased development in the Platform district with Platform 14 completed in 2013, followed by the Tessera apartments completed in 2014, Hub 9 in March 2015, Rowlock in August 2015 and Vector in 2016. Platform 14 set the stage for the following phases of development, which included more partnership with the City of Hillsboro.



Rendering of developments in the Platform District from Holland Partner Group



PROJECT GOALS

The City of Hillsboro and Holland Partner Group shared a common vision and recognized that Orenco station was a unique location that had the potential to be something special. The City collaborated with Holland to achieve that vision with the open space elements and amenities that were most important to the City. Holland Partner Group set out to create a great place that was profitable for them as a developer, but would also serve as a great placemaking opportunity as part of the partnership with the City.

POLICIES, PARTNERSHIPS AND IMPLEMENTATION

Phased Development Regulations

Hillsboro planners drafted a proposed Station Area Interim Protection Ordinance (SAIPO) in 1993, and after numerous iterations and a contentious planning process, the ordinance was adopted by City Council in April 1994. This covered the broader area around the station including the area south of the rail line. Interim zoning in the early phases of development at Orenco station included density minimums, site design requirements for a more pedestrian friendly environment, parking limits and a prohibition on auto-oriented uses.



Orenco Station Master Plan from Planetizen

Development regulations for the area immediately north of the Orenco light rail station initially prohibited residential development with nearby areas to the east reserved for industrial and business park development. This area was initially designated for industrial development, with areas to the southwest owned by Toshiba and intended for manufacturing uses. The area immediately around Orenco Station on the north side of the light rail line acted as a buffer between potential manufacturing facilities and the residential areas farther north in Orenco Station.

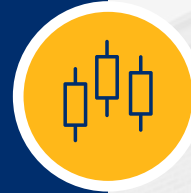
The initial development plan for Orenco Station, with the bulk of development farther from the light rail station is shown to the left.

The City's zoning was somewhat limited in what it would allow in terms of density near the station. Based on a strict interpretation of the code, the maximum yield would be approximately three stories, but with a more flexible interpretation of the code, the City was able to permit four stories of development over two stories of parking. Both the City and the developer considered building higher around the station, but there were firm limitations in height based on what the City Fire Department was able to service with its existing fire trucks.

ECONOMIC DEVELOPMENT AND FINANCIAL INCENTIVES

Regional Funding Sources

Metro Council, the regional government for the Portland metropolitan area worked with Holland to support progress toward the 2040 regional growth concept and catalyze TOD on the MAX system. Metro awarded \$700,000 TOD grant to Holland. TriMet contributed approximately \$500,000 in grant funding to Holland as part of the development of the Vector building, which included a one-to-one park-and-ride replacement with 120 spaces in the building's parking podium.



Orenco Station Plaza from Holland Partner Group

City Incentives

The City of Hillsboro agreed to a financing agreement for System Development Charges (SDC), or impact fees in Oregon, for the Tessera and the last three phases of development in the Platform District. The terms of that agreement allowed the charges to be financed over a 15-year period rather than the 10-year period typical for the City with only a 5% down payment on impact fees rather than the typical 15% the City uses for other financed impact fees. The City also allowed those charges to transfer to a new owner with the sale of the property, rather than requiring a payout at the time of sale, which is a typical requirement for financing SDCs in Hillsboro.

Hillsboro also extended the vertical housing tax exemption to the project, a state tax abatement program administered by Oregon Housing and Community Services that encourages mixed-use development in targeted areas throughout the state. The extent of the exemption varies by the number of residential floors in the project (12% per story) up to an 80% exemption for 10 years, with an additional exemption for low-income housing. To be eligible for this exemption, projects must achieve a certain base density and have a specific proportion of the ground level dedicated to retail space. The developer met the eligibility requirements for the tax exemption program, with a 60% 10-year exemption for Tessera and an 80% 10-year exemption for Hub 9, Rowlock and Vector, reducing the annual property taxes on the four developments by an estimated \$2.3 million through 2025.

Public Private Partnership

The developer had a longstanding relationship with the City. Clyde Holland, the company's Chief Executive Officer had a long-standing relationship with the City of Hillsboro and a record as a developer in the city, both as a representative for other developers and in his time at Holland Partners. One of the key tools the City used to help implement improvements in the area was to make specific off-site mitigation such as parks and roadway improvements a voluntary condition of approval in lieu of impacts fees, or System Development Charges (SDCs) in Oregon. The City used this mechanism to create new connections in the street network around Orenco station and establish more of a gridded street pattern in a suburban context, and to create two new park spaces at Cornell Creek Park, and Orenco Station Plaza in cooperation with Holland.

The developer, in partnership with the City, built a 0.8-acre public plaza surrounding the Orenco MAX station, which connects the buildings and parking areas in the Platform District with the light rail station. The plaza serves as pedestrian access with restaurants fronting the plaza, and space for seasonal events and community gatherings. The plaza is programmed by the City and other local organizations with regular activities, including ice-skating in winter, an Oktoberfest celebration in fall, and a farmers' market that runs through the spring and summer.

The plaza was originally owned by TriMet but ownership was transferred to the City of Hillsboro. Holland paid for the construction of the plaza itself, which came to \$2.6 million and was funded using system development changes from the last three developments in the Platform District. After the plaza opened to the public, the City became responsible for the repair, maintenance and programming of the plaza. The Holland partner group as a condition of approval for their development in the station area contributed \$75,000 each year for 10-years to fund a Parks Department position within the City of Hillsboro responsible for programming the plaza.

TOD Case Studies

DEVELOPMENT OUTCOMES

The five developments in the Platform districts together included 987 units and 33,200 SF of non-residential across all 5 sites.

PLATFORM 14

- **166 Apartments, 11 Live/Work (177 Units), 16,300 SF commercial space.**

TESSERA

- **304 Units with 6,900 SF of ground floor retail, with some 3BR units targeted toward families.**

HUB 9 (MARCH 2015)

- **Double concrete podium with Type V wood construction**
- **10,000 SF of retail oriented toward the Orenco MAX station with 124 apartments**
- **72 one-bedroom units, 16 two-bedroom units and 36 studio units**

ROWLOCK (AUGUST 2015)

- **Six stories, five ground floor commercial spaces and 255 units**
- **152 one-bedroom units, 35 two-bedroom units, and 68 studio units with some ground related residential units (2 story townhouses with stoops)**
- **Exterior design to resemble a warehouse, persevered Oregon white oak trees on the property**

VECTOR (2016)

- **Six-story residential building with 230 residential units**
- **120 Park-and-Ride spaces to replace the spaces in the existing surface lot, and upper story outdoor space**
- **160 one-bedroom units, 30 two-bedroom units and 40 studio units**

Holland Partners, with support from public partners, helped create a compact mixed-use neighborhood that supports modes other than driving to access the Orenco Station. In the broader TOD area, a 2017 study found that only 31.4% of people accessing the Orenco Station neighborhood drove, while 45.8% of people walked, and 16% accessed the neighborhood primarily by rail. The share of walking and rail access was highest in the areas that were closer to the light rail station. The older Town Center area, north of recent phases of development, a popular example of TOD in the early 2000s with larger surface parking areas behind mixed-use buildings is still accessed primarily by car (61%) nearly 20 years after the Orenco light rail station was constructed.

With development and street patterns that support walking and transit use, the trip generation of development around Orenco station falls well below what would be estimated under the standard Institute of Traffic Engineers (ITE) Guidelines which are often used by policy makers to set parking requirements. A 2017 study found that the project generated over 40% less vehicle trips than the ITE manual estimates for a development of that scale. As a result, the Orenco TOD area has an excess of parking spaces; just over 50% of parking stalls are actually occupied during peak hours.



Orenco Station plaza by GB Arrington



SUMMARY: LESSONS LEARNED

Collaboration between the City of Hillsboro and the Holland Partner Group was key. Both the developer and the City compromised to some degree in the process and a developer agreement between Hillsboro and Holland Partner Group gave both a greater degree of flexibility in the process. The City was flexible in its interpretation of development regulations, allowing more vertical height for Holland and higher densities immediately north of the station. Holland was flexible in their profit margins to create a great place for people to live and visit with public space amenities and active uses that founder and director, Clyde Holland considers his “legacy project.”

The City’s use of impact fee financing and voluntary mitigation allowed them to achieve greater public benefit in parks and open space and new street connections. Working with a cooperative developer to construct the improvements as voluntary mitigation allowed the City to maximize the value of those fees and implement them at lower cost.

Vignettes

The following vignettes are examples of approaches to topics relevant to TOD along the Everett Link corridor that were not necessarily covered in the case studies.

Privately Owned Public Spaces

POPS Design Guidelines

ARLINGTON, VA

Arlington, Virginia often requires the provision of publicly accessible open space in new development but the spaces provided vary in quality with open space often relegated to left over land and little thought for usability or integration into the neighborhood. To address these challenges, Arlington added design guidelines for POPS in its latest Public Spaces Master Plan and included an action for the County Board to ensure that POPS conditioned in adopted site plans are informed by park level of service guidelines and the POPS Design Guidelines. The design guidelines recommend that public spaces be contiguous and regular in shape, large enough to provide meaningful and comfortable space for users; be visible and accessible from the street, sidewalk, or pedestrian walkway; and provide connections to existing or planned nearby public spaces. Also included are recommendations for access and circulation, user comfort, landscaping, amenities, and signage. The guidelines set clear expectations for developers and provide the County a measuring stick to evaluate public benefits in proposed projects.



Welburn Square, a privately owned public space in Arlington

*Bike lane in Edmonton*

Complete Streets

Complete Streets Design and Construction Standards

EDMONTON, AB (CANADA)

Edmonton's latest street design and construction standards combine the City's earlier design standards and complete streets guidelines into one united document. The core of the guidelines is the idea of modal priority. Though ideally all streets would be able to accommodate all modes, physical and monetary constraints often mean that is not possible, so prioritization is essential. Edmonton is in the process of developing citywide modal priority networks for trucks, transit, pedestrians, and cyclists, which will help determine what the priority for each street should be. The design guidelines include a range of options for accommodating modes with priorities ranging from high to low. Modes with the highest priority on a given corridor must be accommodated and should use more robust standard design options while lower priority modes should if possible be provided at least basic access. In addition, streets are divided into typologies based on functional classification, existing or anticipated land use and whether that land use is street oriented or non-street oriented. Street typologies and the modal priorities guide which design elements to incorporate, and which to cut when facing constraints.



Arlington's Stormwater Wetland Park by PSRC

Stormwater Parks

Stormwater Wetland Park

ARLINGTON, WA

Arlington's Stormwater Wetland Park, completed in 2011 on the banks of the Stillaguamish, cleans stormwater from Old Town Arlington in addition to outflow from the nearby water treatment facilities. Constructed in the early part of the 20th century, Old Town Arlington used to flush its stormwater directly into the Stillaguamish with no filtration. Water quality in the river was further degraded by the replacement of riparian wetlands with farms. Indeed, the land where the park now sits used to be a farm before being acquired by the City in 2000. The 21-acre park now treats 280 acres of stormwater runoff in addition to providing flood control, natural habitat, and public open space along the riverfront for a capital cost of \$1.2 million. While the park accomplishes several functions at once, getting to that point required collaboration across multiple departments and upfront planning for ongoing maintenance, but consolidating stormwater treatment using green infrastructure can also yield greater efficiency and cost savings in the long run.

Swales

Swale on Yale and Aurora Bridge Swale

SEATTLE, WA

Bioswales mimic the filtration process of nature by cycling runoff water through layers of soil and plants to remove pollutants picked up from roadways and other impervious surfaces. Swales provide a green amenity to a neighborhood as well as removing harmful pollutants from runoff before it is discharged into a lake or ocean. Seattle's "Swale on Yale" treats about 180 million gallons of runoff a year from over 400 acres of Capitol Hill on two blocks of sidewalk planting strip along Yale Avenue. The Swale was developed as a joint project between Seattle Public Utilities and the developer Vulcan. Another project in Seattle, led by developers SGA partnering with Salmon-Safe, constructed bioretention units capable of filtering a collective 600,000 gallons of runoff from the Aurora Bridge, which sits over the development. The third stage capable of filtering a further 1,235,000 gallons, was constructed in 2020 in partnership with the state.



Aurora Bridge Swale by Hannah Letinich



Shared Stacked Green Infrastructure

Green Line

ST. PAUL, MN

Constructing a light rail line requires extensive drainage work to manage runoff along the entire alignment, but this also provides an opportunity for green infrastructure investment. In St. Paul, the Green Line included five miles of tree trench, nine rain gardens, and stormwater planters to not only provide drainage for the light rail, but for the surrounding development as well, while also creating an extensive green amenity throughout the area. Traditionally, stormwater runoff would be handled separately for each development underground, or not at all if a parcel did not redevelop. With the construction of the shared stacked system, new development does not have to construct separate systems and existing untreated runoff can be captured before running back into the Mississippi River. Local residents and visitors also get the benefit of a large amount of street trees and other green sidewalk amenities.

Rain garden at Marion street with light rail on University Avenue from Capitol Region Watershed District



District Energy

Sacramento Valley Station

SACRAMENTO, CA AND DOCKSIDE GREEN – VICTORIA, BC (CANADA)

District energy is an old idea that has returned to the forefront in the era of climate change. The basic idea is to generate thermal energy and/or electricity for an entire neighborhood at a centralized plant and distribute it via water or steam in a system of pipes for climate control. Several pre-20th century cities in colder climates such as St. Paul and New York constructed extensive steam distribution systems that operate to this day. In fact, Seattle has its own privately operated system that includes 18 miles of pipes that has operated continuously since 1893 and supplies hot and cold water to many businesses in downtown and First Hill including the Central Library, SAM, and several hospitals. In the modern era, district energy

works best in large scale or campus development where infrastructure can be coordinated, and developments can be built with centralized thermal energy generation in mind. The benefits of district energy are significant savings from economies of scale and balancing demand spikes. District energy is commonly employed on college campuses, such as the University of Washington, but there are modern non-campus examples as well. Sacramento Valley Station, a 33-acre development of former public land is planned to have shared heat and electricity generation from geothermal and other sources between the various buildings in the transportation hub. Dockside Green, a 2011 development in Victoria, BC, includes a biomass heat generation plant that provides climate control and hot water to the 1.3 million square foot community. However, according to the EPA, combined heat and power generation can be more efficient than traditional heat and power sources at the scale of a single commercial or residential building.



Dockside Green by J. Scratchely

Resources

Local Lessons

City of Bellevue – East Link (Spring District)

<https://bellevuewa.gov/city-government/departments/transportation/projects/east-link-light-rail/station-area-planning>

City of Redmond – South East Redmond – Marymoor Village Plan

<https://www.redmond.gov/851/Marymoor-Village-Design-Guidance-and-Sta>

Kenmore Park-and-Ride – Rail~volution webinar

<https://railvolution.org/resources/webinars/>

Kingsgate Park-and-Ride

<https://www.kirklandwa.gov/Government/Departments/Planning-and-Building/Code-and-Plan-Amendment-Projects/Kingsgate-Park-and-Ride-Code-Amendments>

Lynnwood City Center PSS APA presentation

<https://drive.google.com/drive/folders/170aKQTc0eNw9USWoujV4r7YbT7tklLw6>

Roosevelt Station TOD

<https://www.soundtransit.org/system-expansion/creating-vibrant-stations/transit-oriented-development/roosevelt-station>

Shoreline report on phased zoning, stormwater, public space

<https://www.shorelinewa.gov/home/showpublisheddocument?id=50349>

South Kirkland Park-and-Ride

<https://kingcounty.gov/council/news/2015/October/10-26-JH-PSRCaward.aspx>

City of Redmond – South East Redmond – Marymoor Village Plan

<https://www.redmond.gov/851/Marymoor-Village-Design-Guidance-and-Sta>

Tacoma TOD Advisory Group

https://www.cityoftacoma.org/government/committees_boards_commissions/transit_oriented_development_advisory_group

Roosevelt Station TOD

<https://www.soundtransit.org/system-expansion/creating-vibrant-stations/transit-oriented-development/roosevelt-station>

Kenmore Park-and-Ride – Rail~volution webinar

<https://railvolution.org/resources/webinars/>

Local Resources

Housing Benefits Districts – Sound Communities

<https://soundcommunitiesps.org/hbd/>

Housing Incentives and Tools Survey Report – PSRC

https://www.psrc.org/sites/default/files/housing_incentives_and_tools_survey_report.pdf

Sound Transit Resources

Sound Transit TOD

<https://www.soundtransit.org/system-expansion/creating-vibrant-stations/transit-oriented-development>

Additional Resources

RESIDENTIAL AND BUSINESS DISPLACEMENT

11th Street Bridge Park's Equitable Development Plan – Washington, DC

https://bbardc.org/wp-content/uploads/2018/10/Equitable-Development-Plan_09.04.18.pdf

How TIFs Can Be Used for Affordable Housing – National Housing Conference

<https://nhc.org/policy-guide/tax-increment-financing-the-basics/how-tifs-can-be-used-for-affordable-housing/>

11th Street Bridge Park's Equitable Development Plan – Washington, DC

https://bbardc.org/wp-content/uploads/2018/10/Equitable-Development-Plan_09.04.18.pdf

Transit-Oriented Affordable Housing Funds – Center for TOD

<https://ctod.org/policy-tools.php>

GREEN INFRASTRUCTURE**Combined Heat and Power Basics – Department of Energy**

<https://www.energy.gov/eere/amo/combined-heat-and-power-basics>

Millvale Ecodistrict Case Study

<http://ecodistricts.org/wp-content/uploads/2017/08/ed-case-study-millvale-FINAL-august-23-2017.pdf>

Our Systems – Clearway Community Energy

<https://clearwaycommunityenergy.com/systems/>

St. Paul District Energy

<https://www.districtenergy.com/>

Stormwater Parks – PSRC

<https://www.psrc.org/our-work/stormwater-parks>

PARKING**Comparing the travel behavior of affordable and market-rate housing residents in the transit-rich neighborhoods of Denver, CO – Eleni Bardaka and John Hersey**

<https://www.sciencedirect.com/science/article/abs/pii/S2214367X18300541>

King County Right Size Parking Calculator

<https://rightsizeparking.org/index.php>

Effects of TOD on Housing, Parking, and Travel – Transit Cooperative Research Program

<http://www.reconnectingamerica.org/assets/Uploads/finalreporttcrp128.pdf>

Replacement Parking for Joint Development: An Access Policy Methodology – BART

https://www.bart.gov/sites/default/files/docs/BART_Access_Policy_Methodology.pdf

Rochester, NY Parking and Transportation Management Association Study – DMC Transportation Infrastructure Management Program Management

<https://www.rochestermn.gov/home/showpublisheddocument/21087/636652579000470000>

Replacement Parking for Joint Development: An Access Policy Methodology – BART

https://www.bart.gov/sites/default/files/docs/BART_Access_Policy_Methodology.pdf

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