

Planning Transit-Oriented Development Around High-Speed Rail Stations in Fresno and Bakersfield

Best Practices, Current Planning Efforts, and Recommendations



Image by Joe Walser

By
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December 2010

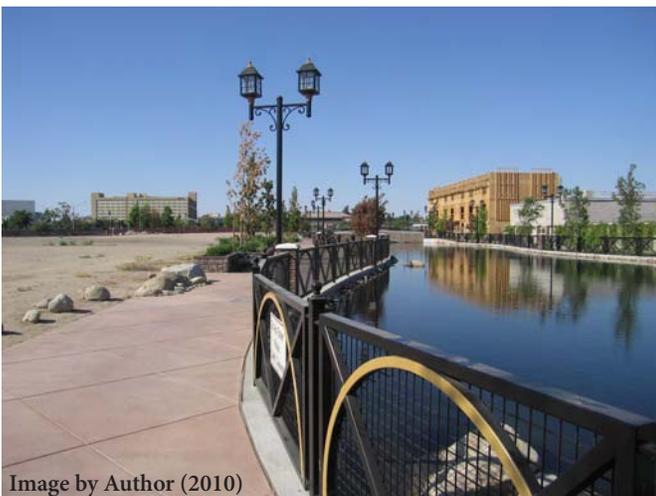


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Planning Transit-Oriented Development Around High-Speed Rail Stations in Fresno and Bakersfield

Best Practices, Current Planning Efforts, and Recommendations

A Planning Report

Presented to

The Faculty of the Department of
Urban and Regional Planning

San José State University

In Partial Fulfillment

Of the Requirements for the Degree
Master of Urban Planning

By

Daniel Krause

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Approved by the Department of
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Table of Contents

Acknowledgments	v
Table of Contents	vii
List of Figures	xi
Chapter 1: Introduction	1
1.1 Purpose of Research.....	1
1.2 Research Question	2
1.3 California High-Speed Rail Project.....	2
1.4 Study Areas.....	5
1.4 Methodology	6
1.5 Structure of Report	7
PART ONE – High-Speed Rail and Transit-Oriented Development: Literature Review, Case Studies, and Guidelines.....	9
Chapter 2: Literature Review.....	11
2.1 Unique Ridership Market of High-Speed Rail	11
2.2 General Economic Conclusions	12
2.3 Location of High-Speed Rail Stations.....	16
2.4 Land Uses	17
2.5 Connecting Transportation Infrastructure	21
2.6 Design Attributes of Development Around High-Speed Rail Stations.....	24
2.7 Public-Sector Involvement	26
2.6 Literature Review Conclusion	29
Chapter 3: Case Studies	31
3.1 Lille, France (Lille Europe and Lille Flandres Stations)	31
3.2 Zaragoza, Spain (The Zaragoza-Delights Intermodal Station)	37
3.3 Kyoto, Japan (Kyoto Station)	44

Table of Contents

Chapter 4: Transit-Oriented Development Guidelines..... 51

 4.1 Land Use Guidelines 51

 4.2 Transportation Guidelines 52

 4.3 Urban Design Guidelines 53

 4.4 Public-Sector Involvement Guidelines 53

PART TWO – Fresno: Study Area Characteristics, Planning Profile, and Recommendations..... 55

Chapter 5: Fresno Study Area Characteristics..... 57

 5.1 Fresno Study Area Overview 57

 5.2 Opportunities..... 59

 5.3 Constraints 62

Chapter 6: Fresno Planning Profile 67

 6.1 Existing Plans and Studies 67

 6.2 Current Planning Efforts 74

 6.3 General Conclusions..... 76

Chapter 7: Recommendations for Fresno 79

 7.1 Land Use..... 79

 7.2 Transportation 81

 7.3 Urban Design 84

 7.4 Public-Sector Involvement..... 85

PART THREE – Bakersfield: Study Area Characteristics, Planning Profile, And Recommendations..... 87

Chapter 8: Bakersfield Study Area Characteristics..... 89

 8.1 Bakersfield Study Area Overview 89

 8.2 Opportunities 93

 8.3 Constraints 97

Chapter 9: Bakersfield Planning Profile	99
9.1 Existing Plans and Studies	99
9.2 Current Planning Efforts	104
9.3 General Conclusions.....	105
Chapter 10: Recommendations for Bakersfield.....	107
10.1 Land Use.....	107
10.2 Transportation	110
10.3 Urban Design	111
10.4 Public-Sector Involvement.....	112
PART FOUR – Conclusion	115
Chapter 11: Conclusion	117
11.1 Conclusions – Literature Review	117
11.2 Conclusions – Case Studies	119
11.3 Conclusions – Fresno.....	120
11.4 Conclusions – Bakersfield	121
11.5 Relevance to the Planning Profession.....	122
11.6 Suggestions for Further Study.....	122
Bibliography	123
Glossary of Acronyms.....	133

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List of Figures

Figure 1. Map of the planned high-speed rail system in California.....	4
Figure 2. Fresno and Bakersfield Study Areas	6
Figure 3. Location of Lille, France along France’s Train à Grande Vitesse system	32
Figure 4. Lille Europe Station and Lille Flandres Station	33
Figure 5. Land uses of the Euralille development immediately around Lille Europe and Lille Flandres Stations.....	34
Figure 6. Development around the Lille Europe Station and Lille Flandres Station	35
Figure 7. Existing Alta Velocidad Española system.....	38
Figure 8. Zaragoza-Delights Intermodal Station.....	39
Figure 9. Perspective images of development plans for the Milla Digital and Expo 2008 sites	40
Figure 10. Plan for the reuse of Expo 2008 pavilion buildings for offices	41
Figure 11. Examples of architecturally significant buildings and structures from Expo 2008	42
Figure 12. Location of Kyoto, Japan along the Tokaido Line of the Shinkansen system.....	45
Figure 13. Land uses at and around Kyoto Station	47
Figure 14. Layout of land uses within the north structure of Kyoto Station.....	48
Figure 15. Kyoto Station.....	49
Figure 16. Fresno Study Area vicinity map.....	57
Figure 17. Fresno Study Area	59
Figure 18. Fresno Convention Center and William Saroyan Theater	60
Figure 19. Fulton Mall in downtown Fresno.....	61
Figure 20. Examples of historic structures in downtown Fresno	62
Figure 21. Union Pacific Railroad right-of-way.....	63
Figure 22. Former train station building adjacent to the Union Pacific Railroad tracks and the California Dairies factory in Chinatown	64
Figure 23. Eight-county San Joaquin Valley.....	67

List of Figures

Figure 24. Map of proposed activity centers and transit-oriented corridors in the vicinity of downtown Fresno.....	74
Figure 25. Project areas of the <i>Fulton Corridor Specific Plan</i> and the <i>Downtown Neighborhoods Community Plan</i>	75
Figure 26. Recommendations Map for the Fresno Study Area	79
Figure 27. Bakersfield Study Area vicinity map	89
Figure 28. Bakersfield Study Area	90
Figure 29. Office buildings in downtown Bakersfield.....	91
Figure 30. Historic assets in the northwest portion of the Bakersfield Study Area	91
Figure 31. Convention center area.....	92
Figure 32. Recently developed entertainment and recreational assets in downtown Bakersfield	93
Figure 33. Opportunity sites for transit-oriented development in the immediate vicinity of the Bakersfield high-speed rail station sites	94
Figure 34. Historic assets in the Old Town Kern area and along Truxtun Avenue	96
Figure 35. A conceptual land-use plan for the area surrounding a high-speed rail station located near Truxtun Avenue in downtown Bakersfield.....	100
Figure 36. Proposed Bakersfield beltway system in the <i>2011 Final Regional Transportation Plan</i>	104
Figure 37. Recommendations Map for the Bakersfield Study Area	107

Chapter 1: Introduction

An explosion in the development of transit-oriented development (TOD) around the country associated with rail and bus rapid transit systems has taken place in recent years. A significant body of literature discussing the attributes of successful TOD has also been produced. Even a nonprofit organization is devoted to examining various forms of TOD and to educating the public and policymakers about TOD.¹

Now the United States is embarking on the development of high-speed rail (HSR) systems around the country.² The implications of long-distance and intercity ridership patterns associated with HSR travel bring into question the relevance of many existing TOD models. These models are generally focused on TOD for transit systems serving a single metropolitan area.³

Are the housing and daily commuter-focused models in suburban areas appropriate for HSR station areas? Are TOD models for city centers, consisting of a mix of high-density retail, office, and housing, good models for HSR station areas? Do new models of TOD need to be created for HSR station areas to realize the full potential for economic development?

1.1 PURPOSE OF RESEARCH

This research first seeks to gain an understanding of TOD attributes that encourage economic development at HSR station areas, with a focus on mid-sized cities located between two or more large metropolitan areas. Then, this research aims to apply the information gathered to two mid-sized California cities with planned HSR stations – Fresno and Bakersfield – by assessing how effectively those cities are planning for TOD in areas around their planned HSR stations. Finally, this research aims to produce a set of recommendations for policymakers in Fresno and Bakersfield to assist them in planning for TOD around HSR stations that maximizes economic development.

Fresno and Bakersfield were selected for this research out of a total of 24 cities likely to receive a HSR station along the planned California HSR system.⁴ They were chosen due to the severe economic conditions both cities are currently experiencing, and the potential for HSR to improve their economic outlook. They both rank near the top in national unemployment rates.⁵

¹ Center for Transit-Oriented Development, *Five Years of Progress*, no date given, 3, http://www.cntd.org/repository/CTOD_5YearBro_Final_LoRez.pdf (accessed November 8, 2010).

² United States Department of Transportation, “President Obama, Vice-President Biden Announce \$8 Billion for High-Speed Rail Projects across the Country,” January 28, 2010, <http://www.dot.gov/affairs/2010/dot1810a.htm> (accessed November 8, 2010).

³ Hank Dittmar and Shelley Poticha, “Defining Transit-Oriented Development: The New Regional Building Block.” In *The New Transit Town: Best Practices in Transit-Oriented Development*, edited by Hank Dittmar and Gloria Ohland (Washington D.C.: Island Press, 2004), 38.

⁴ California High-Speed Rail Authority, “Project Vision and Scope,” http://www.cahighspeedrail.ca.gov/project_vision.aspx (accessed November 8, 2010).

⁵ Bureau of Labor Statistics, “Local Area Unemployment Statistics: Unemployment Rates for Metropolitan Area, November 2009,” <http://www.bls.gov/web/laummtrk.htm> (accessed January 9, 2010).

Furthermore, both cities have ample vacant and underutilized land in the vicinity of their planned HSR stations, providing great opportunity for TOD and associated economic benefits.

1.2 RESEARCH QUESTION

Based on the experience of mid-sized cities with creating new development around high-speed rail stations in Europe and Asia, how can the cities of Fresno and Bakersfield most effectively plan for transit-oriented development around their planned high-speed rail stations in a way that maximizes economic development?

1.3 CALIFORNIA HIGH-SPEED RAIL PROJECT

Plans for HSR have been under consideration for over 25 years in California.⁶ In 1981, a \$2 billion plan for a HSR line from San Diego to Los Angeles, using Japanese HSR rail technology (called Shinkansen), was proposed by the American High Speed Rail Corporation. To help develop the project, California state lawmakers exempted the project from environmental review, gave tax breaks to the American High Speed Rail Corporation, and granted use of public rights-of-way (ROW) along the San Diego Freeway. While the San Diego to Los Angeles plan never materialized, efforts were begun in 1994 to review the environmental impact of a HSR system in California under purview of the High Speed Rail Commission.⁷ In 1996, the California High Speed Rail Authority (Authority) was formed to succeed the California High Speed Rail Commission. The Authority's mission was "...to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger train system offering intercity service."⁸ The Authority commenced work on the official environmental review process in 1998.

Due to the massive scope of the project, the Authority split the environmental review process into program-level and project-level phases. The program-level phase resulted in the production of two environmental documents. The *Final Program Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System - Volume 1: Report (Program-Level EIR/EIS)* was released in 2005, and covered the entire statewide system.⁹ However, the *Program-Level EIR/EIS* acknowledged that the routing and other environmental issues were not resolved for the Bay Area portion of the route. Therefore, further program-level work was undertaken to resolve these issues. As a result, the *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/ Environmental Impact Statement* was released in 2008.¹⁰

⁶ Nova, "Tracking the Supertrains," directed by Theodore Bogosian (Boston: WGBH Educational Foundation, 1982), http://www.youtube.com/watch?v=dIA2U_kYomk&feature=related (accessed October 30, 2010).

⁷ California High-Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System - Volume 1: Report*, August 2005, S-2 and 1-1, <http://www.cahighspeedrail.ca.gov/library.asp?p=7226> (accessed January 10, 2010).

⁸ *Ibid.*, 1-1.

⁹ *Ibid.*

¹⁰ California High-Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement*

Based on the program-level environmental work, the statewide HSR system is designed to connect northern and southern California with service that will run up to 220 miles per hour, dramatically reducing travel times over current Amtrak service.¹¹ The system will consist of up to 24 stations (see Figure 1). The project is envisioned to be implemented in phases, with the first phase running from San Francisco to Los Angeles and Anaheim, via San Jose, the San Joaquin Valley (SJV), and Palmdale.¹² The second phase will extend tracks from Merced to Sacramento and Los Angeles to San Diego via Riverside.¹³ Stations in the SJV will include Stockton, Modesto, Merced, Fresno, Bakersfield, and possibly one in the Hanford/Visalia area. The route through the SJV is generally envisioned to run along the Union Pacific Railroad (UPRR) corridor north of Fresno and the Burlington Northern Santa Fe Railway Company (BNSF) corridor south of Fresno. Stations in the SJV are generally envisioned for the downtown areas.

Based on the *Program-Level EIR/EIS*, both Fresno and Bakersfield are planned to have rapid access to both the San Francisco Bay Area and Los Angeles metropolitan areas.¹⁴ Trains from Fresno will reach San Francisco in as little time as 1 hour and 20 minutes and Los Angeles in 1 hour and 24 minutes. Trains from Bakersfield will reach San Francisco in as little time as 1 hour and 51 minutes and Los Angeles in 54 minutes.

Following the completion of the program-level environmental review, the project received a boost as significant levels of funding were provided for the HSR project. First, in November of 2008, the voters of California approved Proposition 1A, which provided \$9 Billion in bond money for the project.¹⁵ Then in 2009, as part of the Federal government's American Recovery and Reinvestment Act (ARRA), also known as the Federal stimulus, \$8 billion was specified for HSR nationwide.¹⁶ In January 2010, California was granted \$2.25 billion out of this \$8 billion for

(*EIR/EIS*), May 2008, http://www.cahighspeedrail.ca.gov/Bay_Area_to_Central_Valley_Final_Program_EIR/EIS.aspx (accessed October 27, 2010).

¹¹ California High-Speed Rail Authority, "Project Vision and Scope," http://www.cahighspeedrail.ca.gov/project_vision.aspx (accessed November 8, 2010).

¹² Legislative Council, State of California, "Bill Number: AB3034," http://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_3001-3050/ab_3034_bill_20080826_chaptered.html (accessed December 12, 2010).

¹³ *Ibid.*; California High-Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System - Volume 1: Report*, August 2005, Figure 2.1-1, 6A-15, and 6A-17, <http://www.cahighspeedrail.ca.gov/library.asp?p=7226> (accessed January 10, 2010).

¹⁴ California High-Speed Rail Authority, "Interactive Map," http://www.cahighspeedrail.ca.gov/trip_planner.aspx (accessed October 9, 2010).

¹⁵ League of Women Voters of California Education Fund, "Proposition 1A," <http://www.smartvoter.org/2008/11/04/ca/state/prop/1A/> (accessed October 9, 2010).

¹⁶ United States Department of Transportation, "President Obama, Vice-President Biden Announce \$8 Billion for High-Speed Rail Projects across the Country," January 28, 2010, <http://www.dot.gov/affairs/2010/dot1810a.htm> (accessed November 8, 2010).

Introduction

projects related to the HSR project.¹⁷ California also applied for an additional \$1 billion in Federal HSR funding as part of the 2010 Federal appropriations bill,¹⁸ and was awarded \$715 million.¹⁹



Figure 1. Map of the planned high-speed rail system in California.

Source: California High Speed Rail Authority, "California High-Speed Train Map, Statewide Overview," April 2010, http://www.cahighspeedrail.ca.gov/images/chsr/20100505130538_Statewide%20Map%20-%20April%202010.pdf (accessed October 10, 2010).

¹⁷ California High-Speed Rail Authority, "Press Release - ARRA Award Announcement," January 28, 2010, http://www.cahighspeedrail.ca.gov/press_releases.aspx (accessed October 9, 2010).

¹⁸ California High-Speed Rail Authority, "Press Release - California High-Speed Rail Authority Seeks up to \$1 Billion in New Federal Funds," July 30, 2010, http://www.cahighspeedrail.ca.gov/press_releases.aspx (accessed October 9, 2010).

¹⁹ California High-Speed Rail Authority, "Press Release - California High-Speed Rail Awarded \$715 Million," October 28, 2010, http://www.cahighspeedrail.ca.gov/pr_715_Million.aspx (accessed October 31, 2010).

In the meantime, the Authority has commenced project-level environmental work.²⁰ When completed, the project-level environmental review will define station locations, routing, and the configuration of the tracks in much more detail than was accomplished in the *Program-Level EIR/EIS*.²¹ Due to the massive scope of the HSR project, the statewide route has been divided into nine sections. For each of these sections, separate project-level environmental reviews are currently underway.

The Fresno to Bakersfield section includes the high-speed rail stations in Fresno and Bakersfield, and therefore is most relevant to this research.²² The project-level scoping and alternative analysis for this section has been completed and the Authority is currently in the process of producing a draft project-level EIR/EIS document, which is due to be released in January 2011. Completion of a final EIR/EIS document is anticipated for July 2011.

Recently, federal officials announced that all ARRA funds, as well as an additional \$715 million granted from the 2010 Federal HSR appropriation must be used in the SJV.²³ The Authority subsequently announced they would use these funds to construct a 65-mile section of HSR track from a location north of Fresno near Madera to a point near Corcoran (north of Bakersfield).²⁴ Stations in Fresno and near Hanford will also be constructed. Furthermore, up to an additional \$624 million in HSR funds was recently redirected to California from other states.²⁵ This funding is anticipated for use in extending construction in the SJV. Therefore, planning for TOD in Fresno and Bakersfield is extremely relevant at this time.

1.4 STUDY AREAS

This research examines two separate study areas. These study areas are located around the planned HSR stations in the downtowns of Fresno and Bakersfield (see Figure 2). The Authority has identified their preference for locating HSR stations in the downtowns of both cities.²⁶ Furthermore, there has been little controversy to-date about locating HSR stations in the downtowns of Fresno and Bakersfield. Therefore, it is highly likely that HSR stations in both

²⁰ California High-Speed Rail Authority, "Project Sections," http://www.cahighspeedrail.ca.gov/trip_planner.aspx (accessed November 8, 2010).

²¹ California High-Speed Rail Authority, "Project Vision and Scope," http://www.cahighspeedrail.ca.gov/project_vision.aspx (accessed November 8, 2010).

²² California High-Speed Rail Authority, "Fresno to Bakersfield Preliminary Alternative Analysis Presentation," June 3, 2010, http://www.cahighspeedrail.ca.gov/Lib_Fresno_Bakersfield.aspx (accessed October 9, 2010).

²³ California High-Speed Rail Authority, "Press Release - Federal Funding for High-Speed Rail Dedicated to the Central Valley," November 4, 2010, http://www.cahighspeedrail.ca.gov/pr_fedfundingcenvally.aspx (accessed November 8, 2010).

²⁴ California High-Speed Rail Authority, "Press Release - California High-Speed Rail Authority Approves Starting Point for Statewide Construction," December 2, 2010, http://www.cahighspeedrail.ca.gov/pr_approvedstart.aspx (accessed December 10, 2010).

²⁵ California High-Speed Rail Authority, "Press Release - California High-Speed Rail Receives Up To \$624 Million in Additional Federal Funding," December 9, 2010, http://www.cahighspeedrail.ca.gov/pr_624million.aspx (accessed December 10, 2010).

²⁶ California High-Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System - Volume 1: Report*, August 2005, 6A-15 and 6A-17, <http://www.cahighspeedrail.ca.gov/library.asp?p=7226> (accessed January 10, 2010).

Introduction

cities will be located in their respective downtowns. The Fresno Study Area and the Bakersfield Study Area are described in more detail in Chapters 5 and 8 respectively.

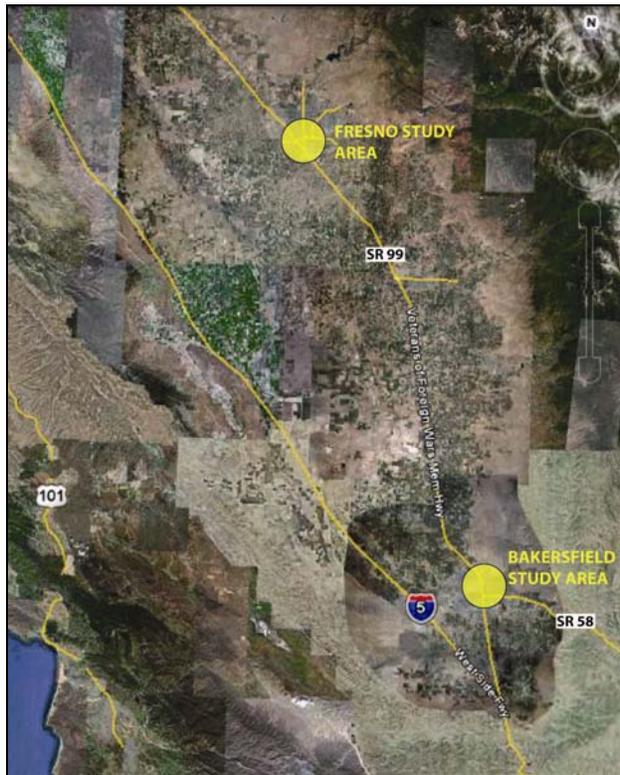


Figure 2. Fresno and Bakersfield Study Areas.

Source: Created by author (2010). Base image courtesy of Google Earth (2010).

1.4 METHODOLOGY

The methodology used for this report is entirely qualitative in nature. Data collection methodology is divided into four categories as follows: 1) literature review; 2) review of primary documents related to planning for TOD and HSR in Fresno and Bakersfield; 3) site visits; and 4) interviews of local officials and stakeholders.

1.4.1 Literature Review

An extensive literature review was conducted to gain a thorough understanding of land use, transportation, urban design, and public-sector involvement related to development around HSR stations. Literature examined primarily contains data from Europe and Asia. The rationale for focusing on European and Asian data is due to the extensive experience the two continents have with HSR as compared to other areas of the world. A focus was also placed on reviewing mid-sized cities in the literature due to the fact that Fresno and Bakersfield are also mid-sized cities. In theory, the urban dynamics of similarly-sized cities should be more congruent than cities with significantly different populations.

Based on this literature review, three case studies were conducted to further refine best practices for TOD around HSR stations that promote economic development. The knowledge gained from

this review of literature and the corresponding case studies was used to produce a set of general guidelines for TOD at HSR stations.

1.4.2 Review of Primary Documents Related to Planning TOD and HSR in Fresno and Bakersfield

Numerous governmental planning documents were reviewed and analyzed to gain an understanding of previous and current planning efforts in the cities of Fresno and Bakersfield related to TOD and HSR.

1.4.3 Site Visits

The areas surrounding the planned HSR stations in Bakersfield and Fresno were directly observed. A drive-through was conducted to get a general sense of the surrounding environment. Numerous pictures were taken. Then, more detailed observation was conducted via a walk-through in selected areas. Notes were taken on base maps of the area. Following the site visits, the study areas were adjusted to include important assets and features relevant to future development around the planned HSR stations.

1.4.4 Interviews of Local Officials and Stakeholders

Several in-person interviews were conducted with high-level officials in the local governments of Fresno and Bakersfield, and with non-governmental stakeholders. Questions were prepared ahead of time and were primarily focused on identifying additional existing conditions and current planning efforts related to TOD around the planned HSR station sites. Follow-up correspondence was conducted where missing information was still needed from interviewees.

1.5 STRUCTURE OF REPORT

Following this introduction chapter, this report is divided into four parts, which contain a total of ten chapters. This report is organized as follows:

- **Chapter 1: Introduction**, discusses the purpose of this research, the research question, introductions to the California High-Speed Rail project and the study areas in Fresno and Bakersfield, the research methodology used, and the structure of the report.

Part One – High-Speed Rail and Transit-Oriented Development: Literature Review, Case Studies, and Guidelines, provides the base line research and guidelines for TOD around HSR stations, and comprises Chapters 2-4.

- **Chapter 2: Literature Review**, provides an extensive review of the unique ridership markets associated with HSR; general economic conclusions; location of HSR stations for maximizing economic development; land uses and connecting transportation infrastructure that maximizes economic development; design attributes around HSR stations; and public-sector involvement.
- **Chapter 3: Case Studies**, examines in detail development projects at and around HSR stations in Lille, France; Zaragoza, Spain; and Kyoto, Japan.

- **Chapter 4: Transit-Oriented Development Guidelines**, provides a set of guidelines for TOD around HSR stations in the areas of land use, connecting transportation, urban design, and public-sector involvement. Guidelines are tailored to Fresno and Bakersfield by focusing on TOD characteristics that best serve mid-sized cities.

Part Two – Fresno: Study Area Characteristics, Planning Profile, and Recommendations, begins by documenting data collected from site visits, interviews, and primary source documents. This is followed by a set of specific recommendations for TOD around the planned HSR station in Fresno. This part comprises Chapters 5-7.

- **Chapter 5: Fresno Study Area Characteristics**, provides an overview of the Fresno Study Area and identifies opportunities for and challenges to TOD.
- **Chapter 6: Fresno Planning Profile**, examines exiting plans and current planning efforts in Fresno to determine their effectiveness in promoting economically successful TOD around the planned HSR station.
- **Chapter 7: Specific Recommendations for Fresno**, provides a series of recommendations that are based on the specific site conditions surrounding the planned HSR station in Fresno and current planning trends. Recommendations are split into land use, circulation, urban design, and public-sector involvement.

Part Three – Bakersfield: Study Area Characteristics, Planning Profile, and Recommendations, begins by documenting data collected from site visits, interviews, and primary source documents. This is followed by a set of specific recommendations for TOD around the planned HSR station in Fresno. This part comprises Chapters 8-10.

- **Chapter 8, Bakersfield Study Area Characteristics**, provides an overview of the Bakersfield Study Area and identifies opportunities for and challenges to TOD.
- **Chapter 9: Bakersfield Planning Profile**, examines exiting plans and current planning efforts in Bakersfield to determine their effectiveness in promoting economically successful TOD around the planned HSR station.
- **Chapter 10, Specific Recommendations for Bakersfield**, provides a series of recommendations that are based on the specific site conditions surrounding the planned HSR station in Bakersfield and current planning trends. Recommendations are split into land use, circulation, urban design, and public-sector involvement.

Part Four– Conclusions, comprises Chapter 11, which provides a conclusion to the report.

- **Chapter 11, Conclusions**, summarizes conclusions from the literature review and case studies. Conclusions pertaining to Fresno and Bakersfield are also summarized. Then, the relevance of this research to field of urban planning is discussed, followed by suggestions for further study.

The report concludes with a **Bibliography** and a **Glossary of Acronyms**.

PART ONE

HIGH-SPEED RAIL AND TRANSIT-ORIENTED DEVELOPMENT: LITERATURE REVIEW, CASE STUDIES, AND GUIDELINES

Part One of this research report documents available data regarding high-speed rail and associated urban development, primarily from Europe and Asia, through an extensive literature review (Chapter 2) and three detailed case studies (Chapter 3). The lessons learned from the literature review and the case studies are synthesized in a set of guidelines for transit-oriented development around high-speed rail stations in mid-sized cities that are located between larger metropolitan areas (Chapter 4). These guidelines are used in Part Two and Part Three to assess how effectively Fresno and Bakersfield are planning for HSR and to identify a set of specific recommendations for each city.

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Chapter 2: Literature Review

The intent of this review of literature is to determine best practices for planning transit-oriented development (TOD) around high-speed rail (HSR) stations that promote economic development. A focus is given to mid-sized cities that are located between two or more large metropolitan areas. The information documented in this review, along with the case studies documented in Chapter 3, inform the general TOD planning guidelines presented in Chapter 4. In turn, these guidelines have been utilized in creating a set of specific recommendations for the TOD around HSR station in Fresno and Bakersfield.

This literature review begins by describing unique ridership markets associated with HSR. Then, general economic conclusions are discussed in terms of the potential and limits of economic growth due to HSR, the question of whether HSR causes metropolitan concentration or regional dispersion, residential settlements patterns as a result of HSR, and how tourism is affected. Then the review looks more specifically at how the physical environment impacts the economic success of HSR in terms of station location, specific land uses, and connecting transportation infrastructure. Design attributes of development around HSR stations follows. Finally, the importance of public-sector involvement is discussed.

2.1 UNIQUE RIDERSHIP MARKET OF HIGH-SPEED RAIL

Generally, the literature agrees that HSR stations draw a different market of riders than would a rail station along a transit line that serves a single metropolitan area. According to Cervero and Bernick, HSR services attract irregular, non-routine travel to a greater extent, and attract predictable and regular travel to a lesser extent.²⁷ Further, they conclude that the nature of HSR stations is that they have ridership catchment areas that are much larger than those of typical transit stations. Greengauge 21, a HSR-focused think tank from the United Kingdom, also discusses the unique market of HSR, which tends to consist of people who travel long distances than is average and are from high-income groups.²⁸

It is critical to keep in mind these conclusions regarding the unique ridership market associated with HSR stations in terms of both land use and transportation planning. If planning is done assuming a daily commuter model of travel within a single metropolitan area, non-optimal land uses are likely to result, which will likely affect the level of success in terms of both HSR ridership and TOD around stations.

²⁷ Robert Cervero and Michael Bernick, *High-Speed Rail and Development of California's Central Valley: Comparative Lessons and Public Policy Considerations* (Berkeley, CA: Institute of Urban and Regional Development, University of California, Berkeley, 1996), 9-10.

²⁸ Greengauge 21, *High Speed Trains and the Development and Regeneration of Cities* (London: Greengauge 21, June 2006), http://www.greengauge21.net/assets/European_Regeneration_Experience.pdf (accessed January 15, 2010), 6.

2.2 GENERAL ECONOMIC CONCLUSIONS

The ideal composition of TOD around HSR stations, in terms of land uses and connecting transportation infrastructure, is based on the nature of economic development associated with HSR. This section discusses conclusions from the literature about the characteristics of economic development and how that impacts planning for TOD in terms of land use and connecting transportation.

2.2.1 Potential and Limits of Economic Growth in Connection to High-Speed Rail

The literature consistently finds that implementing HSR, in and of itself, is not enough to stimulate economic growth. Cervero and Bernick conclude rail investments do not stimulate economic growth but influence “already-committed” growth and rarely have a significant influence on development patterns.²⁹ Giovini warns that cities with bad economies have difficulty taking advantage of HSR, and may even suffer economic decline.³⁰ He also concludes that HSR is not justified based solely on economic development benefits because the benefits are not great enough. Masson and Petiot echo the idea that HSR alone is not enough to create economic growth, concluding that wealth creation must be accompanied by other measures.³¹ They further conclude that transportation networks (such as HSR) have a secondary role to other economic influences.

Though HSR in isolation may not be enough to stimulate economic growth, some literature endorses the view that the *potential* for economic growth in connection with HSR is strong. Greengauge 21 concludes that where HSR is provided, it should help a city grow its service sectors (i.e., business, public administration, leisure, commerce, and tourism).³² Cervero and Bernick acknowledge economic growth is possible where HSR has been planned with economic growth in mind, as is the case with the Shinkansen system in Japan.³³

Some literature documents economic benefits that have taken place in association with the implementation of HSR. Research conducted by Rietveld et al. of the Shinkansen system finds that the number of firms and employment increased more in cities with a HSR station and an expressway than cities with only an expressway.³⁴ Haynes supports the conclusions of Rietveld et al., documenting a 22% increase in employee growth for information-sector industry in Japanese cities with both a HSR station and an expressway.³⁵ Froïdh finds a positive HSR-economic growth

²⁹ Robert Cervero and Michael Bernick, 3.

³⁰ Moshe Givoni, “Development and Impact of the Modern High-Speed Train: A Review,” *Transport Review* 26, no. 5 (September 2006): 605-609.

³¹ Sophie Masson and Romain Petiot, “Can the High Speed Rail Reinforce Tourism Attractiveness? The Case of High Speed Rail Between Perpignan (France) and Barcelona (Spain),” *Technovation* 29, no. 9 (September 2009): 614.

³² Greengauge 21, 9.

³³ *Ibid.*, 35.

³⁴ P Rietveld, F.R. Bruinsma, H.T. van Delft, and B. Ubbels, *Economic Impacts of High Speed Trains – Experiences in Japan and France: Expectations in the Netherlands* (Netherlands: Vrije Universiteit Amsterdam, June 2001), 9-11, <ftp://zappa.uvu.vu.nl/20010020.pdf> (accessed March 15, 2010).

³⁵ Kingsley Haynes, “Labor Market and Regional Transportation Improvements: The Case of High-Speed Trains.” *The Annals of Regional Science* 31, no 1 (May 1997): 67.

connection from a wages perspective, concluding HSR commuters are getting higher wages due to improved access to higher paying jobs located farther away.³⁶

These conclusions indicate that HSR in isolation is not enough to generate economic growth, especially in depressed areas. However, the literature indicates HSR, when combined with other efforts, can become a catalyst of economic growth. Further, the documentation of economic growth associated with HSR in the context of a holistic planning effort, gives evidence that it is worthy of pursuit.

2.2.2 Metropolitan Area Concentration versus Dispersion to Regional Cities

The literature also looks at economic growth in terms geographic characteristics, focusing primarily on the economic benefits/decline accrued by large metropolitan cities versus the smaller regional cities that are typically located between metropolitan cities. Differing views are held about whether economic growth is concentrated in metropolitan cities or dispersed. It should be noted that the literature uses a wide range of terms to describe *regional cities*, but for the sake of clarity, this review uses the one term. Very large cities are also referred to as *metropolitan cities* throughout this literature review.

Much of the research finds that HSR may lead to the dispersion of economic activity to regional cities. Blum, Haynes and Karlsson conclude that the increased demand for face-to-face contact from the growing share of jobs in the service- and knowledge-based sector lead firms to see it as profitable to relocate to regional cities that become more accessible due to HSR.³⁷ Bonnafous concludes businesses in the regional cities seem to have a marketing advantage, as they are finding more clients in big cities than those that are being taken from the pool in their own cities. Furthermore, he finds that consultancy businesses in Lyon are able to access clients in Paris without having to move there.³⁸ Ureña, Menerault and Garmendia, based on several Spanish and French examples, find that mid-level businesses and technical consultancy firms are relocating to regional cities to reduce wages and office costs.³⁹ They conclude that there are significant economic opportunities for regional cities with HSR stations located between two metropolitan cities. Garmendia et al., examining regional cities (with little surrounding population) located approximately one hour away from a metropolitan city via HSR, conclude these cities are becoming models of territorial articulation and are functioning as gateways for their surrounding regions.⁴⁰ They also conclude that while accelerated population growth of regional cities has not been observed, the slow decline has been reversed, indicating some economic benefit for such cities. They also document the case study of Ciudad Real, concluding that the city is becoming

³⁶ Oskar Froïdh, "Market Effects of Regional High-Speed Trains on the Svealand Line." *Journal of Transport Geography* 13, no. 4 (2005): 359.

³⁷ U. Blum, K.E. Haynes, C. Karlsson, "The Regional and Urban Effects of High-Speed Trains," *The Annals of Regional Science* 31, no. 1 (May 1997): 8-15.

³⁸ A. Bonnafous, "The Regional Impact of the TGV," *Transportation* 14, no. 2 (June 1987): 135-136.

³⁹ José M. Ureña, Phillippe Menerault and Maddi Garmendia, "The High-Speed Rail Challenge for Big Intermediate Cities: A National, Regional and Local Perspective," *Cities* 26, no. 5 (October 2009): 272 and 278.

⁴⁰ Maddi Garmendia et al., "Urban Residential Development In Isolated Small Cities That Are Partially Integrated In Metropolitan Areas By High Speed Train," *European Urban and Regional Studies* 15, no. 3 (July 2008): 250.

more important because of the concentration of services that employ highly-qualified professionals that commute from Madrid via HSR.

Some research is less conclusive about the potential for economic dispersion to regional cities. Vickerman and Ulied take a mixed view of the prospects of economic growth in regional cities based on their research of the Train à Grande Vitesse (TGV) HSR system in France.⁴¹ They conclude that while there has been a substantial increase in business travel between Paris and regional cities in general, the impact on the economies of each city is uncertain. Furthermore, they conclude that a redistribution of economic activity between regional cities and Paris is not supported by the evidence. Rietveld et al. present mixed findings in their examination of French cities.⁴² While there has been an increase in new branch offices of Parisian firms in Lyon, smaller cities such as Lille have had a difficult time attracting firms. Furthermore, existing branch offices may even be closed due to the ability of people from the main offices to travel roundtrip in the same day. However, if travel is still far enough from the metropolis, then regional business centers can develop and branch offices will strengthen connections to the main office.

Greengauge 21 contemplates the consequences of the economic gain in metropolitan cities, and concludes that this leads to more dependence of the regional cities and the surrounding rural areas on these metropolitan centers.⁴³ However, it is possible that both metropolitan and regional cities may grow together due to HSR. Van den Berg et al. conclude that cities without a HSR station, or cities already not competitive economically, may see economic activity drained to other areas along the HSR network.⁴⁴ On the other hand, they also conclude that there are opportunities for cities to use HSR access to expanded markets for the economic specialties they possess.

Some research finds that HSR may lead to a concentration of economic activity in the metropolitan areas. Vickerman concludes that the growth in peripheral regions may actually be depressed due to firms from metropolitan areas being able to widen their market.⁴⁵ Willigers, through various predictive statistical modeling methods, supports the notion that metropolitan cities gain the most from HSR.⁴⁶ He predicts that new HSR stations coming on-line in the Netherlands will increase the competitiveness of the metropolises (Amsterdam & Rotterdam) relative to other cities in regards to attracting national and international firms. Vickerman and Ulied conclude that economic activity is centralizing from regional hinterlands to large cities due to HSR.⁴⁷ Cervero and Bernick argue that the TGV and Shinkansen have failed to create much

⁴¹ Vickerman, Roger and Andreu Ulied. *Indirect and Wider Economic Impacts of High Speed Rail* (revised draft of unpublished paper, no date given), 8, http://www.mcrit.com/doc_home/Impacts_HSR.pdf (accessed April 2, 2010).

⁴² Rietveld et al., 11-13.

⁴³ Greengauge 21, 16.

⁴⁴ Leo Van den Berg and Peter Pol, *The European High-Speed Train and Urban Development: Experiences in Fourteen European Urban Regions* (Aldershot: Ashgate, 1998), 156.

⁴⁵ Roger Vickerman, "High-speed rail in Europe: experience and issues for future development," *The Annals of Regional Science* 31, no. 1 (May 1997): 36.

⁴⁶ Jasper Willigers, "The Impact of High-Speed Railway Developments on Office Locations: A Scenario Approach," in *Railway Development: Impact on Urban Dynamics*, ed. Frank Bruinsma, Hugo Priemus, Piet Rietveld, and Bert Van Wee (Physica-Verlag Hiedelbert, 2008), 261.

⁴⁷ Vickerman and Ulied, 8.

growth in cities located between two major city poles.⁴⁸ They also claim there is evidence of economic contraction in lower-tier cities for functions that the larger cities can perform. Furthermore, they note that the Shinkansen has not led to dispersion of activity from crowded urban cores, as planners had desired.

The conflicting evidence that both economic dispersion and concentration is taking place, suggests that the performance of individual cities in terms of attracting economic growth is dependent on other factors as well as HSR. This reinforces the general sentiment in the literature that HSR alone is not enough to create economic growth and that other factors are in play.

2.2.3 Residential Settlement Patterns

Most of the literature focuses on business activity when discussing economic growth. However, some literature discusses trends in residential settlement as a result of access to HSR. The predominate position of this literature argues that due to HSR, people are able to settle more easily in regional cities while still taking advantage of the economic benefits in metropolitan areas. Greengauge 21, based on examples from the TGV network and Spain's HSR network, Alta Velocidad Española (AVE), discusses the trend of commuters from regional cities with HSR access switching from weekly commuting to daily commuting, allowing many to remain in these regional cities while maintaining higher paying jobs in the metropolitan cities.⁴⁹ Likewise, Vickerman and Ulid see economic constraints related to housing and other personal circumstances reduced due to increased flexibility in daily and weekly long-distance commuting as a result of HSR.⁵⁰ Rietveld et al. discuss that HSR is promoting residential settlement in regional cities by attracting affluent Parisians.⁵¹

Through the case study of Ciudad Real in Spain, Garmendia et al. examine in greater detail housing-related economic benefits due to HSR access.⁵² They argue that residential growth has been moderately redirected towards the HSR station. Of the daily or weekly commuters to Madrid, a significant number of them had previously immigrated to Ciudad Real, indicating that HSR is drawing people to regional cities such as Ciudad Real. They conclude that residential development is a profitable economic activity for cities like Ciudad Real.

Opposing the general sentiment that HSR is promoting residential settlement, Cervero and Bernick conclude that HSR is likely to have a minimal effect on housing near stations.⁵³ They base this on data showing that multi-family housing development has been minimal at TGV stations, and conclude this is likely due to the fact the TGV is rarely used for routine commuting. One can speculate that this outlier position may be due to the timing of the study, which was in 1996. More recent literature supports a more positive view of the significance of housing at HSR stations.

⁴⁸ Cervero and Bernick, 34-42.

⁴⁹ Greengauge 21, 8.

⁵⁰ Vickerman and Ulid, 11.

⁵¹ Rietveld et al., 13.

⁵² Garmendia et al., 257-262.

⁵³ Cervero and Bernick, 9 and 30.

The near consensus that HSR is promoting settlement in regional cities indicates that they are likely to become more important in the overall economy. It is likely that a highly skilled workforce will continue to settle in these cities, fostering additional economic growth. However, as previously pointed out, other factors will likely be necessary to attract more residents to these cities, such as an attractive and interesting living environment.

2.2.4 Tourism Activity

Another form of economic development strongly linked to HSR by the literature is leisure tourism. Findings from the literature consistently support the notion that HSR is stimulating tourism. Rietveld et al. find that 40% of TGV ridership is from tourists.⁵⁴ Ureña, Menerault, and Garmendia find that tourism in Spanish cities is increasing due to HSR.⁵⁵ Masson and Petiot conclude that HSR can reinforce the attractiveness of a place for tourism by reducing the cost to the tourist in terms of time, making the location more competitive.⁵⁶ Furthermore, Greengauge 21 states that HSR has expanded the potential for weekend getaways by speeding travel from the metropolitan cities to the regional cities that have historic and scenic assets.⁵⁷ According to Cervero and Bernick, rural areas have also benefited from tourism related to the introduction of HSR.⁵⁸ On the other hand, Blum, Hayes and Karlsson conclude that HSR corridors allow people to utilize the cultural attractions more frequently found in metropolitan areas.⁵⁹

The general consensus would indicate that cities should focus their economic development strategies on catering to tourism, especially regional cities where assets may not be well known by outsiders.

2.3 LOCATION OF HIGH-SPEED RAIL STATIONS

The literature documents the importance of the location of HSR stations in creating development opportunities. Greengauge 21 concludes that for stations located in areas where business activity is limited, very little development has been stimulated.⁶⁰ Cervero and Bernick have a similar view, noting that no new towns have been created around TGV stations located at green field sites.⁶¹ They find the same phenomenon taking place along the Shinkansen in Japan, except where the HSR stations at the periphery of cities are connected to excellent public transportation systems. Andersson, Shyr and Fu note that HSR stations need to be centrally located to stimulate increases in residential property values.⁶²

⁵⁴ Rietveld et al., 13.

⁵⁵ Ureña, Menerault, and Garmendia, 272.

⁵⁶ Masson and Petiot, 613.

⁵⁷ Greengauge 21, 8.

⁵⁸ Cervero and Bernick, 135.

⁵⁹ Blum, Hayes, and Karlsson, 13.

⁶⁰ Greengauge 21, 15.

⁶¹ Cervero and Bernick, 31 and 37.

⁶² David Emanuel Andersson, Oliver F. Shyr and Johnson Fu, "Does High-Speed Rail Influence Property Prices? Hedonic Estimates from Southern Taiwan," *Journal of Transport Geography* 18, no. 1 (2010): 172-173.

To be successful in promoting development at HSR stations, it appears that centrally located station sites, or sites that are linked to city centers by excellent public transportation, are necessary.

2.4 LAND USES

Based on the economic growth related to HSR discussed above, much of the literature goes further and discusses land uses that support or discourage economic activity around HSR stations. Three broad categories of HSR-friendly land use emerge from the literature: business-related, residential-related, and tourist-related land uses. This section is organized according to those three categories, with individual land uses discussed within each category.

2.4.1 Business-Related Land Uses

The literature presents general agreement that land uses around HSR stations should accommodate service- and knowledge-based business. Cervero and Bernick list technical services, research and development, and financial and commercial support services as economic activities likely to be at HSR stations.⁶³ Vickerman concludes that the planning of major business centers is very important at HSR stations and that complementary public investment in making this happen is critical.⁶⁴ Masson and Petiot note that business travelers typically spend four times that of leisure travelers and conclude that accommodating business visitors is a key strategic orientation for cities.⁶⁵ According to Rietveld et al., 25% of TGV ridership is from business travelers.⁶⁶

Business-related land uses supportive of HSR usage includes offices (catering to service- and knowledge-based businesses), meeting facilities, flexible workspaces, and conference centers. Each land use is discussed below.

Offices. Generally, studies shows that HSR stations are attractive for locating offices. Willigers, Floor, and van Wee conclude that the effect of HSR on office location is considerable.⁶⁷ Haynes as well as Ureña, Menerault, and Garmendia use examples to provide evidence of the strength of offices at HSR stations, with the former documenting a 43% increase in offices due to high demand at the Part Dieu station (Lyon, France),⁶⁸ and the latter group discussing how Cordoba, Spain, had originally planned for residential, but HSR led to office development.⁶⁹ Debrezion and Willigers document the effects of HSR on office demand in the Netherlands, based on hedonic

⁶³ Cervero and Bernick, 9.

⁶⁴ Vickerman, 35.

⁶⁵ Masson and Petiot, 614.

⁶⁶ Rietveld et al., 11.

⁶⁷ Jasper Willigers, Han Floor and Bert van Wee, "Accessibility Indicators for Location Choices of Offices: An Application to the Interregional Distributive Effects of High Speed Rail," *Environmental and Planning A* 39 (2007): 2097.

⁶⁸ Haynes, 70.

⁶⁹ Ureña, Menerault, and Garmendia, 272.

modeling.⁷⁰ They determined that offices within 250 meters of a HSR station are anticipated to have rents 14% higher than offices located 4 km from a station. Rents are also estimated to increase 8% for every unit of Rail Service Quality Index (a modeling technique that estimates walking distances, connecting transport, levels of service, etc.). Willigers, in another study, documents that businesses with employees who travel frequently, specify HSR as a reason for locating offices near a HSR station.⁷¹

While the literature clearly demonstrates the strength of the office-HSR station connection, Bertolini cautions that office demand may be too much of a good thing.⁷² He concludes that due to the high profit margins of offices at railway stations in general, offices tend to dominate land use plans. This dynamic has the potential to reduce the mix of land uses in favor of offices, which can lead to a sterile environment. Trip also warns of this possibility, concluding invisible qualities are often neglected due to capitalistic motivations.⁷³ He stresses that creating “quality of place” does not generate high profits in the short-term and are hard to measure in the long-term.

The findings demonstrate that office space should be given high priority in plans for TOD at HSR stations. However, these plans will need to have mechanisms for balancing the demand for offices with other land uses to ensure the creation of a dynamic, mixed-use environment that stays lively after business hours.

Meeting Facilities and Flexible Workspaces. In addition to permanent offices, findings show that railway stations generally, and in some instances HSR stations, are good locations for meeting facilities and other forms of temporary workspaces. Ureña, Menerault, and Garmendia discuss the phenomenon observed in Spain of metropolitan professionals (based in very large cities such as Madrid) meeting at intermediate cities along HSR lines so that all meeting participants are able to make a return trip on the same day.⁷⁴ This has resulted in heavily used rental meeting facilities in intermediate cities such as Zaragoza. Flexible workspaces are also being developed at railway stations. Bertolini discusses how railway agencies are developing such workspaces at stations in Netherlands and France.⁷⁵ He notes that consultants have the ability to work in many places, including spaces they reserve for a period of time. In France such arrangements are call "proximity offices." Furthermore, such flexible accommodations can reduce the cost per employee for firms.

⁷⁰ Ghebreegziabihir Debrezion and Jasper Willigers, “The Effects of Railway Stations on Office Space Rent Levels: The Implications of the HSL South in Station Amsterdam South Axis,” in *Railway Development: Impact on Urban Dynamics*, eds. Frank Bruinsma, Hugo Priemus, Piet Rietveld, and Bert Van Wee (Netherlands: Physica-Verlag Hiedelbert, 2008), 278.

⁷¹ Willigers, 262.

⁷² Luca Bertolini, “Station Area Development in Five European Countries: An International Perspective on a Complex Planning Challenge,” *International Planning Studies* 3, no. 2 (June 1998): 180.

⁷³ Jan Jacob Trip, *What Makes a City? Planning for ‘Quality of Place’: The Case of High-Speed Rail Train Station Area Redevelopment* (Netherlands: Delft University of Technology, 2007), 187.

⁷⁴ Ureña, Menerault, and Garmendia, 272.

⁷⁵ Luca Bertolini, “Planning in the Borderless City: A Conceptualisation and Application to the Case of Station Area Redevelopment,” *The Town Planning Review* 71, no. 4 (October 2000): 460-462.

Successful meeting facilities indicate HSR stations may also be well positioned to exploit the market for flexible workspaces. This may already be happening, but was not documented in the literature reviewed.

Conference Centers/Hotels. The connection between conference center use and access to HSR stations is strongly supported by the literature. According to Van den Berg and Greengauge 21, conferences are a key activity of HSR users.⁷⁶ Ureña, Menerault, and Garmendia back up this assertion with their finding that regional cities located between large metropolitan areas are seeing an increase in conferences and scientific meetings.⁷⁷ Lille for example, is planning to expand their conference center as they have reached capacity. Zaragoza also held an international expo. The city is also planning other major shows.

The documented success of regional cities in attracting conference centers is likely to be very relevant to the planning of the California HSR system, as there are several regional cities that have planned stations. Though no literature was reviewed that specifically documents hotel use associated with conferences, the nature of conferences is likely to support significant hotel development in close proximity to conference centers.

2.4.2 Residential-Related Land Use

As discussed above, the literature generally supports the notion that housing demand is significant at HSR stations. Therefore, when planning TOD at HSR stations, it can be concluded that a significant amount of residential land use should be included in plans. More detail is needed to determine the types of housing that should be provided. Unfortunately, there is not a great deal of literature analyzing this issue in detail. However, one study completed by Garmendia et al. produced several relevant conclusions.⁷⁸ Based on their case study of Ciudad Real in Spain, they find that a larger percentage of units are owned versus rented near the HSR station, and conclude that such housing is seen as good investment. Also, they conclude that commuters who use HSR are generally in permanent familial situations, and prefer to own. Interestingly, tenant-commuters actually value proximity to the HSR station more than owners, but the higher cost of housing close to the HSR station limits their access.

Based on these data, it is likely that a mix of affordable rental and for-sale housing would serve the market at HSR stations.

2.4.3 Tourism-Related Land Uses

As discussed above, the literature generally concludes that HSR is generating a significant amount of economic activity as a result of tourism. The specific land uses linked to tourism in the literature are discussed below, and include commercial (retail/entertainment), cultural attractions, and hotels.

⁷⁶ Van den Berg, 156; Greengauge 21, 8.

⁷⁷ Ureña, Menerault, and Garmendia, 272.

⁷⁸ Garmendia et al., 257-262.

Commercial (Retail/Entertainment). Bertolini advocates targeting tourists for commercial activities immediately when they get off trains by including retail uses within railway stations such as cafes and shops.⁷⁹ Though he was looking at urban railway stations in general, his analysis is likely to apply to HSR due to the strong link HSR has to tourism. He also suggests that central tourist facilities offering a variety of services should be included in stations, as is done at Zentrum Zurich Nord.

Cervero and Bernick conclude that large retail and entertainment complexes are likely to be located at HSR stations, including recreational theme parks.⁸⁰ They provide supporting evidence for this assertion by documenting Japanese examples of rent premiums for commercial space in areas with access to both expressways and HSR over areas only serviced by an expressway. Haynes reflects this conclusion, documenting that commercial land values have risen in Japan 67% in areas with HSR and an expressway, and only 42% in areas with only an expressway.⁸¹ Dunphy et al. provide pause, however, warning that too much retail can lead to failure of the entire TOD.⁸² They recommend only creating retail when the market demand is obvious.

In terms of attracting tourists, it would seem that creating retail/entertainment uses would need to be planned and sold as a destination, rather than wait for the commercial aspect of the TOD to grow organically. For smaller, more localized TOD, the strategy of waiting for the market to materialize is likely to be a legitimate strategy.

Cultural Attractions. Greengauge 21 concludes that HSR has expanded the market for weekend getaways.⁸³ This dynamic is true for trips originating in metropolitan cities to regional cities and vice versa. Travelers from metropolitan cities use HSR to access smaller historic and scenic cities. Travelers from regional areas are also able to use HSR to access all the cultural activities that metropolitan cities provide, such as the opera, theater, etc. Masson and Periot suggest that smaller cities with HSR stations such as Perpignan, France, should link tourism attractions to a strong local identity and cultural heritage to better compete with larger cities.⁸⁴

The findings and conclusions from the literature point to the merits of planning and programming tourist attractions in cities with HSR stations, especially in regional cities where the attractions might not be as well publicized.

Hotels. According to some of the literature, the impact of HSR-based tourism on hotels near HSR stations is nuanced. According to Bonnafoust, tourism does not always benefit hotels, especially in the vicinity of the HSR stations in smaller cities.⁸⁵ This is due to the fact that many trips are now becoming day trips due to the speed of HSR. However, some examples indicate that

⁷⁹ Bertolini (2000), 464-465.

⁸⁰ Cervero and Bernick, 9, 35.

⁸¹ Haynes, 67.

⁸² Robert T Dunphy et al., *Developing Around Transit: Strategies and Solutions That Work* (Washington D.C.: Urban Land Institute, 2004), 175.

⁸³ Greengauge 21, 8.

⁸⁴ Masson and Periot, 616.

⁸⁵ Bonnafoust, 135.

visits to hotels located away from the HSR stations have increased dramatically when associated with tourist packages. In a similar vein, Masson and Petiot discuss how HSR has led to increased hotel visits while also reducing the length of stays in some French cities.⁸⁶ They conclude that HSR has more effect on short-stay tourism, while people seem to drive more often for long-term trips. In addition to reducing the length of stays at hotels, Rietveld et al. also document a decrease in overnight stays at hotels due to HSR.⁸⁷

Vickerman discusses one such example – Nantes, France – which initially had a boom in hotels as tourism increased due to HSR, but then saw less-than-expected demand for hotels, causing many to go out of business.⁸⁸ Nevertheless, Rietveld et al. as well as Ureña, Menerault, and Garmendia, point to examples in Japan and Spain where hotels have been added since the commencement of HSR service.⁸⁹

Given the unique impacts of HSR on hotels, it is possible that the assumed demand for hotels was initially too high. However, it does appear that some hotel demand related to tourism is present.

2.5 CONNECTING TRANSPORTATION INFRASTRUCTURE

When planning TOD at HSR stations, it is important to include analysis of connecting transportation infrastructure to/from surrounding areas. The literature is in general agreement about the necessity of high-quality connecting transportation infrastructure. According to Cervero and Bernick, the nature of HSR stations is that they have ridership catchment areas that are much larger than those of metropolitan transit stations.⁹⁰ Due to these large catchment areas, the amount of travel to/from HSR stations can consist of long distances. Greengauge 21 adds to the importance of tying together the catchment area with regional and local transport improvements.⁹¹ Vickerman also stresses the need for HSR to connect to both local and regional transportation networks in order to be successful.⁹²

The literature also concludes that successful development at HSR stations is dependent on good connecting transportation infrastructure. Giovini documents that new development at HSR stations in Japan has depended on good transport links.⁹³ Van den Berg concludes that enhanced secondary transportation modes strengthen urban centers in relation to HSR.⁹⁴ Transportation connections is an area where metropolitan cities will likely have a distinct advantage over the smaller regional cities because the former typically have well established transportation networks, especially good mass transit, while the latter are likely to be deficient in good transport

⁸⁶ Masson and Petiot, 614-616.

⁸⁷ Rietveld et al., 9-10.

⁸⁸ Vickerman, 9.

⁸⁹ Rietveld et al., 9-10; Ureña, Menerault, and Garmendia, 275.

⁹⁰ Cervero and Bernick, 10.

⁹¹ Greengauge 21, 13.

⁹² Vickerman, 34.

⁹³ Giovini, 604.

⁹⁴ Van den Berg, 153.

connections. However, it will likely be easier for the regional cities to establish parking lots while the metropolitan cities may find it difficult to provide significant parking due to spatial constraints.

Literature shows general agreement about the types of connecting transportation infrastructure needed to provide convenient access to and from HSR stations. Infrastructure includes automobile access in the form of roads and parking facilities, public transportation access in the form of regional and intra-city rail and bus services, and to a lesser extent bicycle and pedestrian networks. The literature detailing these systems is reviewed below.

2.5.1 Automobile-Related Infrastructure (including Parking Facilities)

Cervero and Bernick give two reasons for the necessity of including automobile-related infrastructure to HSR stations.⁹⁵ First, business travelers (a significant portion of HSR users) tend to be highly time-sensitive. Quick access to the station via automobile is important for these travelers. Second, large catchment areas, by nature, require longer connecting trips to HSR stations than other rail systems with smaller catchment areas. They conclude that large park-and-ride lots with easy access are needed, as does Vickerman and Greengauge 21.⁹⁶

Though not explicitly stated, the literature seems to imply that automobile access will be faster than connecting public transportation. Furthermore, one could conclude that given the large size of these catchment areas, public transportation will not be able to provide sufficient coverage, especially in areas surrounding regional cities.

In addition to the automobile's importance in providing access to HSR stations, the literature also supports the notion that convenient automobile access is necessary for the growth in development around HSR stations. Cervero and Bernick provide evidence that expressways are needed to induce development at stations by pointing to Japanese examples related to the Shinkansen.⁹⁷ Blum supports the need for road improvements as well, stating that they are necessary to create "functional regions."⁹⁸ However, Cervero and Bernick also warn that automobile infrastructure such as parking lots, if not integrated well into development, have the potential to suppress station-area development.⁹⁹ Van den Berg echoes this sentiment, warning that while automobile access is essential, it should be limited to protect revitalization efforts and city centers.¹⁰⁰

The conflicting views about automobile access indicate that inclusion of automobile-related infrastructure is likely to be a primary challenge in the creation of TOD plans at HSR stations.

⁹⁵ Cervero and Bernick, 10.

⁹⁶ Vickerman 34; Greengauge 21, 17.

⁹⁷ Cervero and Bernick, 10.

⁹⁸ Blum, Haynes and Karlsson 3.

⁹⁹ Cervero and Bernick, 10.

¹⁰⁰ Van den Berg, 154-156.

2.5.2 Public Transportation Access

The importance of providing convenient access to HSR stations via public transportation is critical according to much of the literature, especially for the smaller regional cities or stations that are not centrally located in metropolitan cities. Greengauge 21 discusses the importance of regional rail connections for regional cities.¹⁰¹ According to their report, major cities can dominate over regional cities, causing economic losses. This can be mitigated, however, by creating good public transport connections at the regional level. Cervero and Bernick, based on examples from the Shinkansen, also refer to the importance of high quality feeder transportation to HSR stations, especially at suburban stations.¹⁰² Van den Berg, in a similar vein, discusses the importance of linking HSR stations in peripheral areas to city centers via high-quality public transportation to avoid draining existing centers.¹⁰³ However, according to Van den Berg, it is difficult for regional cities such as Lille and Leige to amass the financial resources necessary to create such infrastructure.

Having enough financial resources to fund adequate improvements to the public transportation system will likely be a problem for many California cities, especially San Joaquin Valley cities, given their dire economic circumstances.

2.5.3 Bicycle and Pedestrian Networks

The literature does not delve into much detail regarding bicycle and pedestrian networks as they relate to HSR stations. However, literature dealing with non-HSR TOD places more focus on these two elements. Though non-HSR TOD has many different dynamics, it is likely the principals of providing pedestrian- and bicycle-access are very similar for HSR stations. Calthorpe discusses the need for a system of bikeways that provide access from secondary areas to transit stops within a TOD.¹⁰⁴ As part of this access, he advocates for “bike-and-ride” facilities (i.e., bicycle parking and bicycle lockers) at transit stops. He also advocates for direct pedestrian routes to transit stations. Froïdh provides data on the importance of pedestrian access to HSR stations, pointing out that market share increases for public transportation if residents are located within walking distance of stations (1 km or less).¹⁰⁵ Cervero and Bernick ascribe less importance to pedestrian access because they conclude that most HSR customers only ride once or twice a week.¹⁰⁶ The large catchment areas of HSR stations may further reduce the significance of pedestrian and bicycle networks.

It may be that bicycle and pedestrian networks are most important in the metropolitan city centers where extremely dense development would likely see large numbers of people simply walking (or bicycling) from the HSR station to their destinations and vice versa.

¹⁰¹ Greengauge 21, 17-21.

¹⁰² Cervero and Bernick, 40.

¹⁰³ Van den Berg, 155 and 157-158.

¹⁰⁴ Peter Calthorpe, *The Next American Metropolis: Ecology, Community, and the American Dream* (New York: Princeton Architectural Press, 1993), 101-103.

¹⁰⁵ Froïdh, 357.

¹⁰⁶ Cervero and Bernick, 22.

2.6 DESIGN ATTRIBUTES OF DEVELOPMENT AROUND HIGH-SPEED RAIL STATIONS

In addition to the land uses and connecting transportation infrastructure included in HSR-based TOD, how these elements are organized and designed into an overall TOD plan will likely have a significant influence on the level of success achieved. Literature covering both HSR station development and TOD at urban mass transit stations struggle with similar issues in terms of the finer details of layout and design. The myriad of design issues that confront TOD planners are often referred to as a tension between place and node functions inherent in all TOD.¹⁰⁷ This section discusses literature that focuses on this tension, followed by literature that examines specific design attributes of both the place and node functions individually.

2.6.1 Place v. Node Tension

Trip, in his examination of HSR station development, concludes that both place and node functions are required for urban economic development.¹⁰⁸ However, he warns of the danger of the node function (i.e., transportation infrastructure) being prioritized over the place function. He concludes that a dominant node function has a negative influence on the place function of a HSR station due to noise, pollution, and spatial fragmentation. Belzer et al. come to the same conclusion in their examination of TOD.¹⁰⁹ They add that attention to the place function often suffers due to a lack of advocates and money. Furthermore, according to Van den Berg, the transit agency is often motivated to emphasize automobile-access to ensure more ridership on the transit system.¹¹⁰ Given these issues, Dittmar and Poticha see the resolution of the place v. node tension as a primary goal for achieving successful TOD.¹¹¹ The design of many suburban Bay Area Rapid Transit (BART) stations displays a dominant node function, even where TOD has been attempted. Large bus depots typically dominate the land use immediately in front of the station entrance, along with large parking structures placed immediately next to the station with no ground floor commercial uses. The consequence is that BART stations, which could serve as a community gathering space if planned with “place” more in mind, primarily function as a node.

2.6.2 Place Attributes

Dittmar and Poticha see “place making” as important as the transit itself in creating successful TOD.¹¹² Trip provides a list of several urban design attributes that contribute to “quality of place.”¹¹³ These include fine-grained streets, active ground floors that include public/semi-public functions, and enclosed squares and parks. He also notes that it is challenging to achieve

¹⁰⁷ Hank Dittmar and Shelley Poticha, “Defining Transit-Oriented Development: The New Regional Building Block,” in *The New Transit Town: Best Practices in Transit-Oriented Development*, eds. Hank Dittmar and Gloria Ohland (Washington D.C.: Island Press, 2004), 22.

¹⁰⁸ Trip, 192.

¹⁰⁹ Dena Belzer et al., “The Transit-Oriented Development Drama and Its Actors,” in *The New Transit Town: Best Practices in Transit-Oriented Development*, eds. Hank Dittmar and Gloria Ohland, (Washington D.C.: Island Press, 2004), 45.

¹¹⁰ Van den Berg, 160.

¹¹¹ Dittmar and Poticha, 22.

¹¹² *Ibid.*, 22.

¹¹³ Trip, 193-200.

attributes supporting the place function because the market demands large blocks and building sites. Daisa advocates for multi-modal street design and a downward revision or elimination of level-of-service standards.¹¹⁴ Bernick and Cervero emphasize a grid of streets, as opposed to a circuitous layout, so direct pedestrian routes are created within a TOD (they refer to them as transit villages), especially to the transit station.¹¹⁵ Daisa adds to this sentiment by specifying the need for small blocks to shorten pedestrian routes.¹¹⁶ He also adds that pedestrian pathways can substitute for streets to break up block size. A primary challenge for HSR-based TOD is to incorporate the place attributes described above while also providing land uses such as conference centers, office buildings, and large retail/entertainment complexes, as the nature of these types of uses are large in scale.

Much of the literature discussing the place function focuses on the layout of housing within HSR-based and conventional TOD, likely because residents are the most sensitive to place qualities. Van den Berg emphasizes the need for a high quality environment around HSR stations in order to attract affluent households.¹¹⁷ Andersson, Shyr, and Fu warn that housing should not be placed too close to the railway tracks.¹¹⁸ Debrezion, Peles, and Reitveld, as well as Armstrong and Rodriquez, support this assertion by documenting reduced housing values when residential uses are too close to railway stations or the railway right-of-way.¹¹⁹ Daisa also specifies that housing (and offices) should be placed between 500 to 1500 feet away from railway stations.¹²⁰

Design strategies to mitigate the impacts of the node function on the place function are also discussed in some literature. Trip suggests tunnels for transportation infrastructure with small-scale development and parks above them.¹²¹ Andersson, Shyr and Fu note that high quality residential construction can mitigate noise when residential uses are in close proximity to the tracks.¹²² Dunphy et al. advocate wrapping parking structures with active uses.¹²³ Daisa urges protection of the pedestrian realm by placing parking structures behind buildings or underground.¹²⁴ Interestingly, there is not much discussion in the literature about the need to mitigate office and commercial land uses from proximity to the station and tracks. This is likely

¹¹⁴ James M. Daisa, "Traffic, Parking, and Transit-Oriented Development," in *The New Transit Town: Best Practices in Transit-Oriented Development*, eds. Hank Dittmar and Gloria Ohland, 114-130 (Washington D.C.: Island Press, 2004), 120.

¹¹⁵ Michael Bernick and Robert Cervero, *Transit Villages in the 21st Century* (New York: McGraw-Hill, 1997), 92.

¹¹⁶ Daisa, 120.

¹¹⁷ Van den Berg, 157.

¹¹⁸ Andersson, Shyr and Fu, 168.

¹¹⁹ Ghebreegziabihir Debrezion, Eric Pels, and Piet Rietveld, *The Impact of Rail Transportation on Real Estate Prices: An Empirical Analysis of the Dutch Housing Model: Tinbergen Institute Discussion Paper* (Amsterdam: Tinbergen Institute, Vrije Universiteit, March 2006), 19; Robert J. Armstrong and Daniel A. Rodriquez. "An Evaluation of the Accessibility Benefits of Commuter Rail in Eastern Massachusetts Using Spatial Hedonic Pricing Functions," *Transportation* 33, no. 1 (January 2006): 38.

¹²⁰ Daisa, 120.

¹²¹ Trip, 199.

¹²² Andersson, Shyr and Fu, 168.

¹²³ Dunphy et al., 175.

¹²⁴ Daisa, 121.

due to the high construction standards of these types of buildings and less sensitivity to the place function by users of these types of uses.

2.6.3 Node Attributes

The literature touches on ways to provide automobile access while attempting to minimize its impacts. Van den Berg as well as Cervero and Bernick strongly endorse automobile access while also advocating that this access should be limited.¹²⁵ Dunphy et al. advocate placing parking structures at a five- to seven-minute walk away from the stations to preserve prime land for development.¹²⁶ Van den Berg advocates designing roads directly into parking lots (he calls them “head-end car terminals”) to avoid flooding local streets with traffic.¹²⁷ However, according to Dunphy et al., grade separated ramps for vehicles accessing the station can increase the footprint of the station.¹²⁸ If parking facilities and the road access to them are placed in a peripheral area of a TOD, it may be possible to minimize the impact of providing automobile access.

The design of connection points between modes, especially between public transportation systems, is also prioritized by the literature. Tapiador et al. have looked closely at intermodal designs that increase efficiency.¹²⁹ Their main finding, through a quantitative approach to measuring time penalties between the various mode connections, is that stations with horizontal layouts are less efficient than those with vertical layouts in terms of transferring between modes. Dunphy et al. concur that stacking transit stations, while more expensive, is more efficient and saves land for development.¹³⁰ They also note that a horizontal layout for car/bus access can separate the station from the adjacent neighborhood (or TOD). They go as far to conclude that the place/node tension can be resolved by stacking stations. Cervero and Bernick elaborate on station connectivity, advocating for intermodal passageway systems between HSR stations and adjacent commercial establishments.¹³¹ Vertically-oriented stations require HSR stations that are elevated or in a subway. This strategy also allows for more intense development immediately surrounding a HSR station. Once again the typical BART station layout is an example of what not to do. These stations feature a horizontal layout, with buses typically placed in front of their station entrances. This has eliminated a lot of development potential and public space opportunities.

2.7 PUBLIC-SECTOR INVOLVEMENT

The literature consistently emphasizes the need for a high-level of public-sector involvement in the creation of successful TOD at HSR and other transit stations. Furthermore, it is clear that this

¹²⁵ Van den Berg, 154; Cervero and Bernick, 10.

¹²⁶ Dunphy et al., 174.

¹²⁷ Van den Berg, 155-156.

¹²⁸ Dunphy et al., 159.

¹²⁹ Francisco J. Tapiador, Kerstin Burckhart and Jordi Marti-Henneberg, “Characterizing European High Speed Train Stations Using Intermodal Time and Entropy Metrics,” *Transportation Research Part A: Policy and Practice* 43, no 2 (February 2009): 197-204.

¹³⁰ Dunphy et al., 156-167.

¹³¹ Cervero and Bernick, 10.

involvement needs to be wide ranging, begun very early, and sustained over a long period of time. This section reviews the discussion of public-sector involvement in terms the following: strong vision, coordination of diverse interests, planning and land assembly, and funding.

2.7.1 Strong Vision

The literature is consistent in support of visionary public-sector leadership. According to Cervero and Bernick the most successful examples of rail guiding growth is where an overall vision was in place first.¹³² Such a vision drives the creation of station area plans and joint development, as well as leading to land banking and the application of development incentives. They conclude, through the evaluation of examples along the TGV network, that significant development only took place when the public sector was heavily involved. Belzer et al. conclude that transit systems alone are not sufficient to drive TOD.¹³³ They also conclude that local governments are in the best position to create and sustain a vision. As part of creating a vision, they suggest that local governments should begin by performing market studies. Development of a vision should also include gathering of public input early, even though there is an inherent risk in asking people what they want. Froidh points to the need for visionary political leadership with a high-level of consensus in order to achieve economic benefits.¹³⁴ Greengauge 21 concludes that not only is strong political leadership essential, but that it must be consistent and sustained if successful development projects at HSR stations are to come to fruition.¹³⁵ The issue of early public-sector involvement is likely to be relevant right now for cities along the planned HSR line in California.

2.7.2 Coordinating Diverse Interests

Dittmar, Belzer, and Autler posit that planning TOD is challenging because it requires the participation by many actors in a fragmented regulatory environment.¹³⁶ Furthermore, according to Belzer et al., actors are often playing contradictory roles and think small in regards to TOD policy.¹³⁷ Bertolini concludes that the public sector has the capacity for involving a plurality of interests and cites the success of governmental coordination in delivering the Euralille development in Lille, France.¹³⁸ Cervero and Bernick also see a role for a single governmental body coordinating all the various agencies involved in HSR and TOD.¹³⁹ Often, according to Greengauge 21, city authorities use this coordinating role to fit HSR into their own city strategies for development, and at times even influence the design of the HSR infrastructure.¹⁴⁰ The current economic crisis and its impact on the budget of local governments in California may adversely

¹³² Cervero and Bernick, 6, 30.

¹³³ Belzer et al., 47-49.

¹³⁴ Froidh, 605.

¹³⁵ Greengauge, 13.

¹³⁶ Hank Dittmar, Dena Belzer and Gerald Autler, "An Introduction to Transit-Oriented Development," in *The New Transit Town: Best Practices in Transit-Oriented Development*, eds. Hank Dittmar and Gloria Ohland, 2-18 (Washington D.C.: Island Press, 2004), 10.

¹³⁷ Belzer, et al., 43.

¹³⁸ Bertolini (1998), 181.

¹³⁹ Cervero and Bernick, 11.

¹⁴⁰ Greengauge 21, 4.

affect the ability of cities to plan and coordinate these various interests. This situation could lead to suboptimal TOD designs, further hurting their economic prospects.

2.7.3 Planning and Land Assembly

The need for government-driven planning is prevalent in the literature. Van den Berg concludes that cities need an integrated strategy for urban development at HSR stations, and that planning needs to be performed in a timely fashion so implementation is not delayed.¹⁴¹ Cervero and Bernick advocate for the creation of specific plans,¹⁴² while Trip advocates for master plans.¹⁴³ Dittmar, Belzer, and Autler warn that many local governments do not understand the necessity of careful planning or how they can facilitate development.¹⁴⁴ To help remedy this situation, they provide a list of plans that governments should pursue in relation to TOD, which include the following: 1) conceptual land use plan; 2) development program; 3) identification of key opportunity sites; 4) design guidelines; 5) streetscape plan; 6) priorities for investments; 7) place making amenities; and 8) circulation plan. Beyond creating plans, Belzer et al. and Cervero and Bernick discuss the need for the public sector to assemble land into developable parcels as a key pre-development activity.¹⁴⁵

To accomplish all the activities suggested by the literature, local governments will need resources. Given the economic crisis and the lack of funds generally available to governments in California, it may be necessary for non-profit groups and other stakeholders to take the lead in providing some vision and preliminary planning services so the TOD designs are well thought out.

2.7.4 Funding

According to the literature, the public sector will need to commit financial resources in the form of direct infrastructure investments and incentives for private developers. According to Belzer et al., local governments are critical for providing public investments in amenities.¹⁴⁶ Trip echoes this sentiment and adds that public-sector investment needs to be targeted for items that are not profitable in the short-term, but in the long-term will allow urban quality to emerge.¹⁴⁷ Cervero and Bernick document that dramatic land use changes at suburban rail stations have taken place only where the public sector has worked to stimulate private investment.¹⁴⁸ Once again, these strategies are very sensible, but the budget constraints often present a real challenge to governments in providing such funding.

¹⁴¹ Van den Berg, 159.

¹⁴² Cervero and Bernick, 7.

¹⁴³ Trip, 197.

¹⁴⁴ Dittmar, Belzer, and Autler, 48.

¹⁴⁵ Belzer, et al., 47-48; Cervero and Bernick, 7.

¹⁴⁶ Belzer, et al., 47.

¹⁴⁷ Trip, 195.

¹⁴⁸ Cervero and Bernick, 4.

2.6 LITERATURE REVIEW CONCLUSION

The findings and conclusions from the literature contained in this chapter, when combined with the lessons learned in the case studies examined in the following chapter (Chapter 3), form the foundation of the TOD guidelines for HSR station areas discussed in Chapter 4. For a summary of the findings and conclusions from this literature review, please refer to the Chapter 11: Conclusion.

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Chapter 3: Case Studies

This chapter presents three case studies of development efforts at and around HSR stations. The case studies include: Lille, France; Zaragoza, Spain; and Kyoto, Japan.

Two of the following three cases studies focus on mid-sized, intermediate cities (i.e., cities with populations ranging from 200,000 to 700,000 that are also located between at least two large metropolitan areas with populations well over 1,000,000). Furthermore, these case studies are of cities that were suffering economically prior to obtaining an HSR station. The purpose of focusing on these characteristics is to gain a thorough understanding of the effects of HSR on such cities. The goal is to provide relevant comparisons for Fresno and Bakersfield, which are both mid-sized intermediate cities that are suffering economically, and are located between the large metropolitan areas of San Francisco, Los Angeles, and Sacramento. A third case study focuses on the station structure itself and land uses contained therein.

Though there are numerous mid-sized, intermediate cities that have HSR stations, many are not ideal for conducting a case study. Often HSR stations in these cities are located in historic city centers, which can preclude significant TOD. Examples include Cordoba, Spain, and Antwerp, Belgium. Additionally, there is very little literature documenting significant, high-profile TOD around HSR stations in mid-sized cities. This situation may be a result of a lack of a visionary planning in conjunction with HSR and/or that not enough time has passed since the commencement of HSR service to assess development patterns. As a result, obtaining detailed literature on developments at HSR stations for mid-sized cities has been difficult – absent travelling to the cities themselves and doing onsite research, which is beyond the scope of this research. However, two exceptions are Lille, France and Zaragoza, Spain. Lille is perhaps the most documented HSR-related TOD of any mid-sized city in the world. Zaragoza is also well known due to the Expo 2008, which took place adjacent to their HSR station.¹⁴⁹ A third example, Kyoto, Japan, is also reviewed. Though Kyoto is larger than a midsized city, its location is still intermediate to the Tokyo and Osaka metropolitan areas. Furthermore, the purpose of the Kyoto case study is to examine development within the HSR station complex rather than surrounding development. Therefore, an exception has been made on the size of the city for this case study.

3.1 LILLE, FRANCE (LILLE EUROPE AND LILLE FLANDRES STATIONS)

Lille is a city located in northwest France and sits in between the three large metropolitan areas of London, Paris, and the Brussels Capital Region.¹⁵⁰ As of January 2007, Lille had a population of 225,789.¹⁵¹ The city has two HSR stations within 800 meters of one another (see Figure 3).¹⁵² The

¹⁴⁹ Expo Zaragoza 2008, “Agenda,” http://www.expozaragoza2008.es/Agenda/seccion=768&idioma=en_GB.do (accessed November 10, 2010).

¹⁵⁰ Google Maps, Search Field “Lille, France,” <http://maps.google.com/maps?hl=en&tab=wl> (accessed December 11, 2010).

¹⁵¹ Institut National de la Statistique et des Etudes Economiques, “Populations Légales 2007 de la Commune,” <http://www.insee.fr/fr/ppp/bases-de-donnees/recensement/populations-legales/commune.asp?depcom=59350> (accessed May 13, 2010).

Gare de Lille Flandres (Lille Flanders Station) is the original central station in Lille, and is served by France's Train à Grande Vitesse (TGV) high-speed rail trains to and from Paris (see Figure 4). It also accommodates numerous conventional trains that run between various provinces. The Gare de Lille Europe (Lille Europe Station) opened in 1993 and accommodates both regional TGV service to surrounding provinces as well as the international Eurostar HSR service that runs between London-Paris and London-Brussels.¹⁵³ As a result of the international HSR traffic stopping at the Lille Europe Station, Lille has become one of the hubs of the emerging European-wide HSR network.

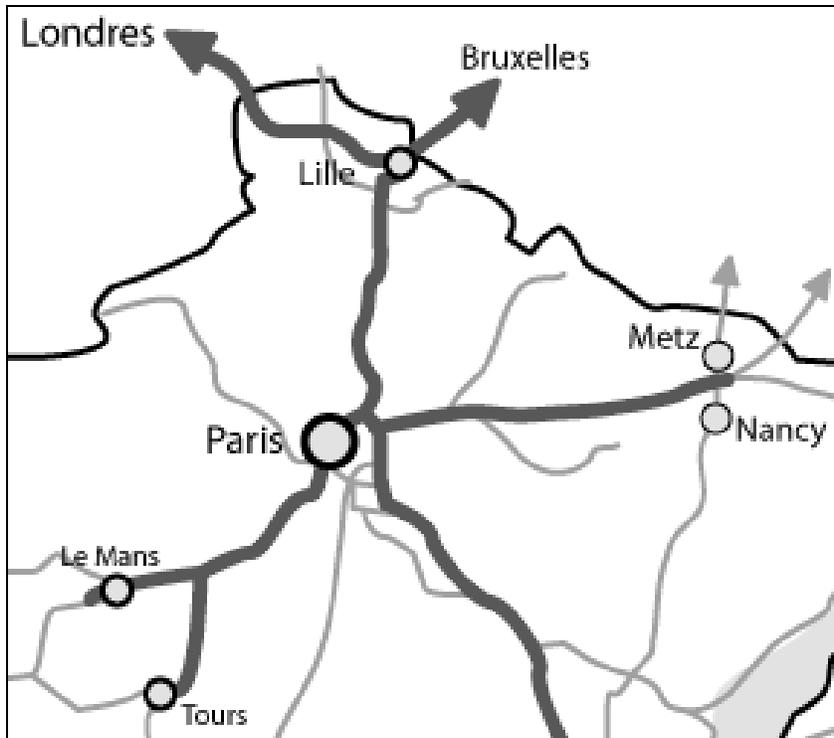


Figure 3. Location of Lille, France along France's Train à Grande Vitesse system.

Note: Dark grey lines denote TGV lines.

Source: Bouron, 2005-2008 (http://www.geotheque.org/img/france_reseau_tgv_nb.gif).

Located between Lille Flandres and Lille Europe Stations, and in areas surrounding the two railway stations, is the central portion of the Euralille development.¹⁵⁴ Euralille is a major master-planned development that was planned in conjunction with the construction of the TGV line and Lille Europe Station.

¹⁵² Leo Van den Berg and Peter Pol, *The European High-Speed Train and Urban Development: Experiences in Fourteen European Urban Regions* (Aldershot: Ashgate, 1998), 86-87.

¹⁵³ Cervero and Bernick, 13-14.

¹⁵⁴ Van den Berg and Pol, 86-87

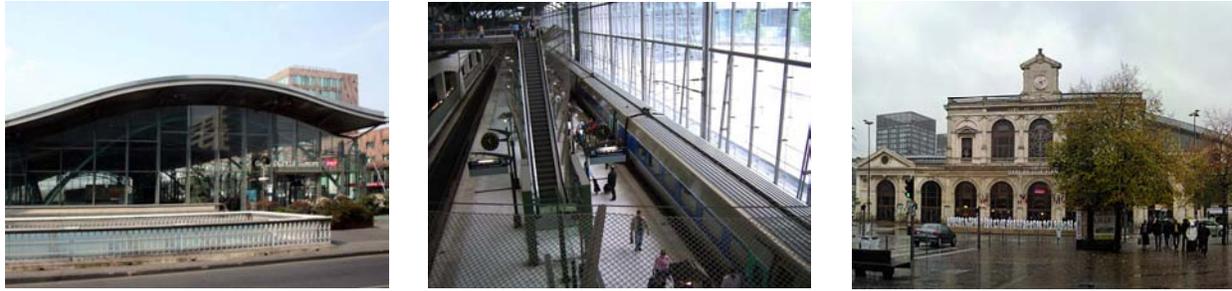


Figure 4. Lille Europe Station and Lille Flandres Station.

Note: Left image shows an entrance to Lille Europe Station. Center image is a view of the station platforms inside Lille Europe Station. Right image is of the historic façade of Lille Flandres Station.

Sources: Image at left: Remi Jouan (2007), [http://commons.wikimedia.org/wiki/File:Lille_Europe_\(3\).jpg](http://commons.wikimedia.org/wiki/File:Lille_Europe_(3).jpg) (accessed November 5, 2010); Image at center: Screen name “Moutonneke” (2008), http://commons.wikimedia.org/wiki/File:Station_Lille_Europe.JPG (accessed November 5, 2010); Image at right: Screen name “Velvet” (2008), http://fr.wikipedia.org/wiki/Fichier:Lille_Gare_Flandres.jpg (accessed November 5, 2010).

3.1.1 History

In the 1960s and 1970s, Lille’s economy suffered from severe industrial decline.¹⁵⁵ Efforts began to transform the economy into more of a service-oriented economy. In the mid-1980s, plans for a new TGV line by Société Nationale des Chemins de fer Français (referred to as SNCF), France’s national railway provider, called for an HSR station in Seclin, a suburb of Lille.¹⁵⁶ This option was much less expensive than providing HSR service directly in Lille. However, Pierre Mauroy, Lille’s Deputy Mayor, seeing economic opportunity in HSR, led a lobbying effort to have a TGV stop in Lille. In 1987 the city was granted a station.¹⁵⁷ To obtain the station, Lille agreed to pay 500 million francs towards the extra cost of routing the TGV to the center of Lille.

With a station secured, Lille launched an effort to create a large development at the new station with a focus on establishing an international business center.¹⁵⁸ To begin the process of creating such a development, a government-based development management organization – Euralille Métropole – was established. Euralille Métropole commissioned the firm of renowned architect Rem Koolhaas to create a master plan, which was completed in 1990.¹⁵⁹ The plan included the Lille Europe Station and the surrounding Euralille development. The master plan was implemented in two phases. The first phase included land acquisition and the construction of the TGV line and station. The site chosen for new development was land obtained from the French military. Lille Europe Station was actually designed by Jean-Marie Duthilleul, not Rem Koolhaas. Phase two consisted of the construction of the envisioned development, much of which was completed by 2000.

¹⁵⁵ Jan Jacob Trip, *What Makes a City? Planning for ‘Quality of Place’: The Case of High-Speed Rail Train Station Area Redevelopment* (Netherlands: Delft University of Technology, 2007), 88.

¹⁵⁶ Jon Lang, *Urban Design: A Typology of Procedures and Products* (Burlington, MA: Architectural Press, 2005), 229.

¹⁵⁷ Cervero and Bernick, 17

¹⁵⁸ *Ibid.*, 17-18.

¹⁵⁹ Lang, 232.

3.1.2 Land Uses

The Euralille development consists of five neighborhoods, with a total population of approximately 1,700 people.¹⁶⁰ The Euralille Center is one of the five neighborhoods, and is located between the two HSR stations (see Figure 5). The Euralille Center (see Figure 6) consists of four main land use components as follows: 1) a large retail/entertainment complex that includes a 1,000-seat theatre, a large supermarket, numerous small shops, a business school, a food court, and daycare services; 2) a business center that includes two office towers of over 20 stories – the iconic Tour de Lille (formerly Crédit Lyonnais Tower) and Tour Lille Europe; and 3) a conference center/exposition hall, which includes the Zenith concert hall;¹⁶¹ 4) a seven-hectare park, called Henri Matisse Park;¹⁶² and 5) lodging, including a Suite Hotel.¹⁶³

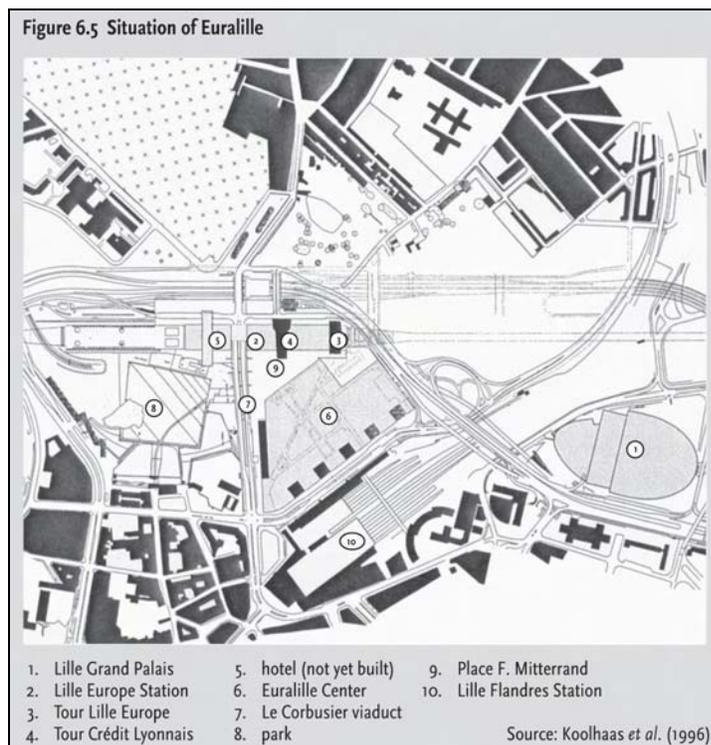


Figure 5. Land uses of the Euralille development immediately around Lille Europe and Lille Flanders Stations.

Jan Jacob Trip, *What Makes a City? Planning for 'Quality of Place': The Case of High-Speed Rail Train Station Area Redevelopment* (Netherlands: Delft University of Technology, 2007), 93.

¹⁶⁰ Euralille (official website), "Study Underway" and "The Heart of the Project Is," <http://www.saem-euralille.fr/> (accessed May 13, 2010).

¹⁶¹ Cervero and Bernick, 18.

¹⁶² Trip, 93-94.

¹⁶³ Euralille (official website), "Study Underway" and "The Heart of the Project Is," <http://www.saem-euralille.fr/> (accessed May 13, 2010).

The other four neighborhoods of the Euralille development contain the bulk of the housing along with some entertainment-related land uses.¹⁶⁴ Euralille 2 is being developed and it has a heavy focus on office development, and to a lesser extent, housing and amenities.



Figure 6. Development around the Lille Europe Station and Lille Flandres Station.

Note: Left image shows office towers adjacent to railway tracks that lead to Lille Flandres Station. Center image shows an entrance to the Euralille Center shopping and entertainment mall. Right image is of the landmark Tour de Lille building, which is located over the tracks at Lille Europe Station.

Sources: Image at left: Screen name “Velvet” (2010), http://fr.wikipedia.org/wiki/Fichier:Lille_Eurocity.JPG (accessed November 5, 2010); Image at center: Screen name “Velvet” (2010), http://fr.wikipedia.org/wiki/Fichier:Lille_Euralille.JPG (accessed November 5, 2010); Image at right: André Leroux (2007), http://fr.wikipedia.org/wiki/Fichier:EURALILLE.Tour_de_Lille_et_Tour_Lille_Europe.JPG (accessed November 5, 2010).

3.1.3 Connecting Transportation

Though Lille is not a huge city, it has a driverless, automated metro train system.¹⁶⁵ This system is referred to as VAL (which stand for Véhicule Automatique Léger, or in English, “automatic light vehicle”), and consists of two lines, one of which connects Lille Flandres and Lille Europe Stations. There is also a tram line that runs between the two stations.¹⁶⁶ This tram line was rerouted to serve the Lille Europe Station. Additionally a network of buses and conventional rail lines serve both stations. Of the two stations, Lille Flandres Station has more connections to public transportation because it holds Lille’s main bus depot and is served by both VAL metro lines, whereas Lille Europe Station is served by one line.¹⁶⁷

Regional HSR service has also increased ties between Lille and the coastal cities of Calais, Boulogne, and Dunkerque to the west.¹⁶⁸ Other cities to the south and southeast have weaker ties to Lille because they have easier access to Paris via HSR.

¹⁶⁴ Ibid., 94.

¹⁶⁵ Railway-Technology.com, “Lille VAL Automated Urban Metro, France,” http://www.railway-technology.com/projects/lille_val/ (accessed November 10, 2010).

¹⁶⁶ Tim Lynch, “Implementing High Speed Rail in Europe with Local Government and the Private Sector Cooperation,” In *High Speed Rail in the U.S.: Super Trains for the Millennium*, edited by Thomas Lynch, 129-146 (Amsterdam: Gordon and Breach Science Publishers, 1998), 142.

¹⁶⁷ Mig de Jong, *Lille Europe: A Success Story?*, no date given, <http://repository.tudelft.nl/view/ir/uuid:06b7b9cc-b004-4a73-a3ac-4c960e9d1134/> (accessed May 13, 2010), 6-7.

¹⁶⁸ José M. Ureña, Phillippe Menerault and Maddi Garmendia, “The High-Speed Rail Challenge for Big Intermediate Cities: A National, Regional and Local Perspective.” *Cities* 26, no. 5 (October 2009): 275.

An extensive network of large streets and highways passes through the Euralille site.¹⁶⁹ Immediately paralleling the Lille Europe Station is a large highway. Additionally, the Euralille development has numerous parking facilities.¹⁷⁰ The Euralille Center includes a parking garage with 2,900 spaces.¹⁷¹ Another, large parking structure is located between the Lille Europe Station and the adjacent La Madeleine and St Maurice residential areas.

3.1.4 Urban Design

According to Newman, the Euralille Center is designed to be distinct from the old city, as its architectural style is very modern.¹⁷² It also turns away from surrounding areas of the city by being visually oriented toward the Lille Europe Station and the tracks that extend outward from it. Lange suggests that the intent of the urban design is to create a visible sense of prestige, with individual, modern buildings to be considered as works of art and signature statements.¹⁷³ Buildings are of a massive scale, especially the Euralille Center and the office buildings located above the Lille Europe Station. Jong concludes there is little connection between the different areas of the Euralille development due to the urban design.¹⁷⁴ Jong also finds fault with the open space component – i.e. the previously mentioned Henri Matisse Park. According to Jong, the park consists of a large grass field with little other landscaping, giving it a desolate feel.

3.1.5 Conclusions

Overall, according to Trip, Greengauge 21, and Jong, the economic situation has generally improved in Lille due to HSR and the Euralille development.¹⁷⁵ They agree that one of the development's main contributions was to raise the profile of the city, which has led to increased economic activity overall. Tiry also documents increased tourism since the commencement of HSR service in Lille.¹⁷⁶

There is, however, some debate about the level of the success achieved by the Euralille development itself. Given that offices are a large component of the Euralille development, rent-levels are used by many to measure success. There is some disagreement on the rent levels, as Trip documents that rents are high relative to other major cities and surrounding areas of Lille, while Jong concludes that rents are slightly lower than surrounding areas and lower than London or Paris.¹⁷⁷ However, it may not be fair to compare megacities, such as Paris and London, as they are

¹⁶⁹ Trip, 94.

¹⁷⁰ Jong, 5-7.

¹⁷¹ Frank Moulaert, Elodie Salin, and Thomas Werquin, "Euralille: Large-Scale Urban Development and Social Polarization," *European Urban and Regional Studies* 8, no. 2 (2001): 152.

¹⁷² Peter Newman, "Mixed use and Exclusion in the International City." In *Reclaiming the City: Mixed Use Development*, edited by Andy Coupland, 249-273 (London: E & FN Spon, 1997), 257-258.

¹⁷³ Lang, 232.

¹⁷⁴ Jong, 7-9.

¹⁷⁵ Greengauge 21, 12; Jong, 8; Trip, 95-96.

¹⁷⁶ Corrine Tiry, "Stations Help Define Urban Image – Kyoto and Lille-Europe," *Japan Railway and Transport Review* 28 (September 2001).

¹⁷⁷ Jong, 7; Trip, 95.

very expensive cities generally. The continuation of office development as part of Euralille 2 indicates that offices are economically successful.

On the whole, continued expansion of development in the station area, especially in the areas of housing, office, and public amenities, supports the position that the Euralille development is economically successful.

A different conclusion can be reached about the quality of urban design. Jong indicates that the urban design of Eurallile is a hostile environment for pedestrians.¹⁷⁸ This seems to be primarily a result of the fragmented nature of the development area by roads and large-scaled buildings that turn away from the street and have limited entrances. Furthermore, Jong suggests the buildings are mono-functional in nature because their mass scale separates the various land use elements. There are also indications that the connecting mass transit services are underutilized, especially by office workers.¹⁷⁹ The fact that many office workers drive to work, even though Lille has a good public transportation infrastructure for a city of its size, indicates the importance of an urban design that fully integrates the various elements of TOD.

3.2 ZARAGOZA, SPAIN (THE ZARAGOZA-DELIGHTS INTERMODAL STATION)

Zaragoza is located in northeast Spain between Spain's two largest metropolitan areas – Madrid and Barcelona.¹⁸⁰ As of September 2010, the city had a population of 701,090.¹⁸¹ Zaragoza is currently linked to Madrid and Barcelona via Spain's Alta Velocidad Española (AVE, literally, "Spanish High-Speed") HSR system.¹⁸² Travel times between Madrid and Zaragoza are as fast as 1 hour and 19 minutes for the roughly 200-mile distance (see Figure 7). AVE service from Zaragoza to Barcelona runs as fast as 1 hour and 30 minutes for the slightly under 200-mile journey. Renfe Operadora, Spain's state-owned railway company, operates the Madrid-Barcelona AVE line to the station. There is also a HSR line that runs south of the city that allows express trains between Madrid and Barcelona to bypass Zaragoza.¹⁸³ Zaragoza's HSR railway station is named the La Estación Zaragoza-Delicias Intermodal¹⁸⁴ (literally "The Zaragoza-Delights Intermodal Station"), and is located approximately 1.5 miles west of the city center according to a measurement taken from Google Earth. It also lies immediately south of a large meander of the Ebro river.

¹⁷⁸ Jong, 9.

¹⁷⁹ *Ibid.*, 6.

¹⁸⁰ Google maps, search field "Zaragoza, Spain," <http://maps.google.com/maps?hl=en&tab=wl> (accessed December 11, 2010).

¹⁸¹ M. Lopez, "Zaragoza Supera Los 700.000 Habitantes", *Heraldo.es*, http://www.heraldo.es/noticias/zaragoza/zaragoza_supera_los_700_000_habitantes.html (accessed October 24, 2010).

¹⁸² Renfe, "Passengers – Timetables" page of official website, <http://www.renfe.com/EN/viajeros/index.html> (accessed October 24, 2010); Note: The distances were approximated from the map shown in Figure 7).

¹⁸³ Ureña, Menerault and Garmendia, 271.

¹⁸⁴ Google Maps, search field "La Estacion Zaragoza Delicias," <http://maps.google.com/maps?hl=en&tab=wl> (accessed December 11, 2010).



Figure 7. Existing Alta Velocidad Española system.

Note: Blue line denotes the extent of the AVE high-speed rail system in Spain as of April 20, 2009.

Source: Spanish government and Wall Street Journal, obtained via *The Wall Street Journal* as a graphic embedded in the Thomas Catan article “Spain’s Bullet Train Changes Nation—and Fast”), <http://online.wsj.com/article/SB124018395386633143.html#project%3DFASTRAIL09%26articleTabs%3Dinteractive> (accessed December 10, 2010).

3.2.1 History

The Zaragoza-Delights Intermodal Station opened in 2003 (see Figure 8).¹⁸⁵ The four main architects of the structure were Carlos Ferrater, J.M. Valero, F. Arranz, and E. Mateu.¹⁸⁶ The opening of the station coincided with the commencement of AVE service from Madrid to the new station in 2003.¹⁸⁷ AVE service was later extended to Barcelona in 2008.¹⁸⁸ With the opening of the new station and a new tunnel for trains through Zaragoza, El Portillo Station (formerly the city’s main railway station located in the city center) and the surface tracks that ran between the

¹⁸⁵ Ben Blankenbehler, “Zaragoza Las Delicias Station, Zaragoza Spain,” Architecture Revive Blog, entry posted November 17, 2009, <http://architecturerevived.blogspot.com/2009/11/zaragoza-las-delicias-station-zaragoza.html> (accessed December 11, 2010).

¹⁸⁶ ArchINFORM, “Las Delicias Station: Estacion Zaragoza Delicias,” <http://eng.archinform.net/projekte/14102.htm> (accessed May 15, 2010).

¹⁸⁷ Wapedia, “Spanish High Speed Rail,” http://wapedia.mobi/es/Alta_Velocidad_Espa%C3%B1ola (accessed October 31, 2010).

¹⁸⁸ Encyclopædia Britannica Online, “Railroad,” 2010, <http://www.britannica.com/EBchecked/topic/489715/railroad> (accessed October 31, 2010).

two station sites were demolished.¹⁸⁹ The demolition of the old station and the tracks created a large amount of vacant land, which is now the subject of redevelopment plans.



Figure 8. Zaragoza-Delights Intermodal Station.

Note: Left image shows the large façade of the Zaragoza-Delights Intermodal Station. Center image is a view of the original train station structure juxtaposed against the newer station structure. Right image shows the interior of the station.

Sources: Image at left: Screen name “Luidger” (2008), http://es.wikipedia.org/wiki/Archivo:20080819-Estaci%C3%B3n_de_Zaragoza-Delicias.jpg (accessed October 30, 2010); Image at center: Screen name “Tamorian” (2009), http://upload.wikimedia.org/wikipedia/commons/b/ba/Zaragoza_Railway_Station_%28post_2008%29.jpg (accessed October 30, 2010); Image at right: Screen names “Maxxcan” and “Retama” (2005), http://upload.wikimedia.org/wikipedia/commons/6/6d/Tren_Zaragoza.JPG (accessed October 30, 2010).

Efforts to create development plans for areas around the new station and at the site of the former El Portillo station, as well as for the land that the former surface train tracks occupied, got underway with the creation of the Zaragoza Alta Velocidad 2002 Corporation, a publicly-owned corporation.¹⁹⁰ The purpose of this corporation is to plan for the development of these areas. As part of this effort, Zaragoza mayor, Juan Alberto Belloch, helped to conceive the development project for these areas referred to as the Milla Digital. The Milla Digital is designed to create a new innovative and technology-based urban environment that will become a center of the emerging information-based economy.¹⁹¹ The project is also designed to provide public spaces and facilities for the surrounding neighborhoods to utilize. A master plan for the Milla Digital was completed in 2004, and a follow up study on how to integrate technology into development was completed by Massachusetts Institute of Technology in 2006.¹⁹²

In addition to the Milla Digital development effort, all development in the vicinity of the new HSR station received a major boost when Zaragoza was selected to host The International Exposition of Zaragoza 2008 (Expo 2008).¹⁹³ The Expo 2008 was located on land within the meander of the Ebro River just north of the Zaragoza-Delights Intermodal Station and west of El Portillo development site (see Figure 9). The development associated with Expo 2008 was

¹⁸⁹ MIT School of Architecture and Planning and the City of Zaragoza, Spain, Zaragoza Milla Digital: Designing a New Century Public Realm, March 2006, http://www.milladigital.org/data/documentos/MIT_ING.pdf (accessed October 31, 2010), 4.

¹⁹⁰ Ibid., 4 and 6.

¹⁹¹ City Council of Zaragoza, “MillaDigital Management,” http://www.milladigital.org/ingles/10_Gestion.php (accessed October 31, 2010); City Council of Zaragoza, “What is It?,” http://www.milladigital.org/ingles/01_quees.php (accessed October 31, 2010); City Council of Zaragoza, “Urban Design,” http://www.milladigital.org/ingles/06_disenoUrb.php (accessed October 31, 2010).

¹⁹² MIT School of Architecture.

¹⁹³ Expo Zaragoza (official website), “Expo Zaragoza: Post Phase Expo Buildings,” http://www.expozaragozaempresarial.com/expozaremp_edif_fase_postexpo.asp (accessed May 15, 2010).

planned so that the structures, such as the various pavilion buildings, were designed for reuse after the conclusion of the event. Therefore, many of the structures built for the Expo 2008 are still in use for a variety of purposes.

3.2.2 Land Uses

Land uses planned for the Milla Digital sites include office space for business in the information and communication sectors, with a significant portion of the land around both the Zaragoza-Delights Intermodal Station and the former El Portillo site programmed for that purpose.¹⁹⁴ As part of the planned office development, space will be reserved for “drop-in centres” to allow businesses to rent space on a temporary basis. Furthermore, supporting services, such as shared training centers, restaurants, and gyms are envisioned. A collaboration center for University of Zaragoza students and firms located at the business center is also being contemplated. A hotel may also be provided that targets its services to the specific needs of the business traveler. In fact, the Hotel Eurostars Plaza Delicias, which sits adjacent to the Zaragoza-Delights Intermodal Station, already targets business (and leisure) travelers and advertises that Barcelona and Madrid are only 90 minutes away.¹⁹⁵ Additionally, the Husa Puerta de Zaragoza Hotel is located within the station itself.¹⁹⁶

Milla Digital plans also include housing for areas between the Zaragoza-Delights Intermodal Station and the former El Portillo site.¹⁹⁷ Housing is also planned in the immediate vicinity of Zaragoza-Delights Intermodal Station. Other uses in the Milla Digital plans include a conference and performance center, a community center, a museum/cultural space, and some retail.¹⁹⁸



Figure 9. Perspective images of development plans for the Milla Digital and Expo 2008 sites.

Note: Left image is looking southward, with the Expo 2008 site at the bottom, Zaragoza-Delights Intermodal Station area at the upper center and right, and El Portillo area in the upper left corner. Center image is a close-up of plans for development immediately adjacent to the Zaragoza-Delights Intermodal Station. Right image is a close-up of plans for development east of the Zaragoza-Delights Intermodal Station.

Source: City Council of Zaragoza, “Milla Digital – Images Gallery” (June 25, 2010), http://www.milladigital.org/ingles/galeria_imgs.php (accessed November 1, 2010).

¹⁹⁴ City Council of Zaragoza, “Companies,” http://www.milladigital.org/ingles/08_empresas.php (accessed October 31, 2010).

¹⁹⁵ Eurostars Hotels (official website), “Hotel Eurostars Plaza Delicias,” <http://www.eurostarshotels.com/EN/hotel-eurostars-plaza-delicias.html> (accessed May 16, 2010).

¹⁹⁶ Hotels-n-Europe.com, “Train Station Accommodation – Spain,” <http://www.hotels-n-europe.com/rail/spain.html> (accessed November 1, 2010).

¹⁹⁷ City Council of Zaragoza, “Housing,” (accessed October 31, 2010).

¹⁹⁸ MIT School of Architecture, 19, 30, and 41.

Following the conclusion of the Expo 2008 event, many of the structures were preserved and reused for a variety of uses, primarily as a business park (see Figure 10).¹⁹⁹ Twelve structures, referred to as the Round Buildings, totaling 80,000 m² (861,113 sq. ft.), are now offices for use by medium- to large-sized companies.²⁰⁰ Another 55,000 m² (592,015 sq. ft.) of office space is contained in the Erbo Buildings, a set of structures along the Erbo River. Another five structures totaling 28,000 m² (301,389 sq. ft.), referred to as the Actur Buildings, have been set aside for government use. The various pavilion buildings are all still in use, primarily as office space, but also as restaurants and for recreational activities. The Aragon Pavilion, a striking structure, has been converted for governmental offices. Many of the other pavilions have been converted into office space as well. A 2,500-space underground parking garage serves the offices.

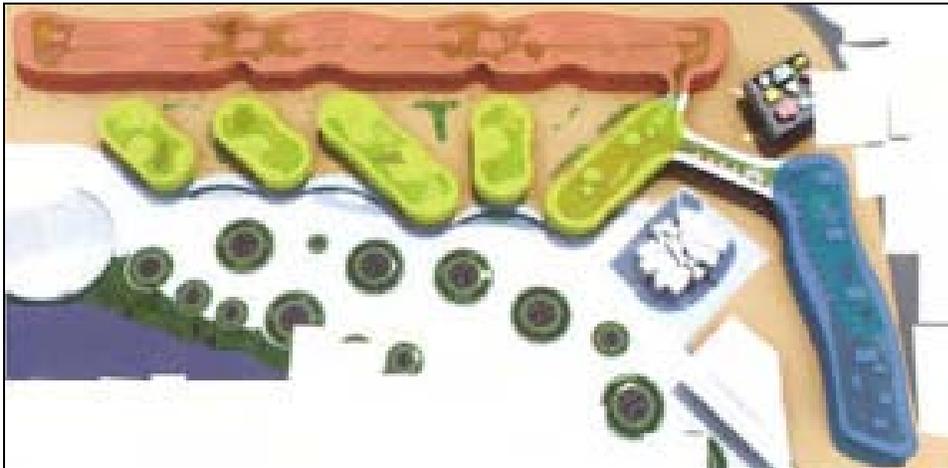


Figure 10. Plan for the reuse of Expo 2008 pavilion buildings for offices.

Note: Round Buildings are shown in red, Erbo Buildings in light green (the light green being landscaped roofs), and the Actur Building in blue.

Source: Expo Zaragoza official website:

http://www.expozaragozaempresarial.com/expozaremp_edif_fase_postexpo.asp (accessed October 30, 2010).

In addition to offices, other uses are associated with the reuse of Expo 2008 structures. Conference center space is contained in the Convention Centre of Aragon Expo 2008 (see Figure 11).²⁰¹ The structure consists of an auditorium with capacity for 1,500 people, a pavilion for various uses, and smaller modular rooms. Additionally, at the closing ceremonies of the 2008 Expo, Spain's Prime Minister announced the Spanish Pavilion building (another Expo 2008 structure) would be reused for a new research center on climatic change.²⁰²

¹⁹⁹ Treehugger, "Expo Zaragoza 2008: The Spanish Pavilion as Sustainable Architecture", <http://www.treehugger.com/files/2008/09/expo-2008-spanish-pavilion.php> (accessed October 24, 2010).

²⁰⁰ Expo Zaragoza (official website), "Expo Zaragoza: Post Phase Expo Buildings," http://www.expozaragozaempresarial.com/expozaremp_edif_fase_postexpo.asp (accessed May 15, 2010).

²⁰¹ On Diseño, "Convention Centre of Aragon Expo 2008," http://www.ondiseño.com/proyecto_en.php?id=1431 (November 11, 2010).

²⁰² Government of Spain, "Expo Closing Ceremony: The President Said That a Research Centre on Climatic Change Would be Based at Spain's Pavilion", *La Moncloa*, <http://www.la-moncloa.es/IDIOMAS/9/ActualidadHome/14092008ClausuraExpo.htm> (accessed October 24, 2010).



Figure 11. Examples of architecturally significant buildings and structures from Expo 2008.

Note: Left image is of the Convention Centre of Aragon Expo 2008. Center image is a view of the Spanish Pavilion. Right image shows the entrance to Zaragoza Bridge Pavilion.

Source: On Diseño website. Image at left: http://www.ondisenio.com/proyecto_en.php?id=1431 (accessed November 10, 2010); Image at center: http://www.ondisenio.com/proyecto_en.php?id=1429 (accessed November 10, 2010); Image at right http://www.ondisenio.com/proyecto_en.php?id=1426 (accessed November 10, 2010).

3.2.3 Connecting Transportation

The Zaragoza Bridge Pavilion provides a pedestrian walkway between the Zaragoza-Delights Intermodal Station area and the Expo 2008 site.²⁰³ However, the spatial layout from the station to the main Expo 2008 site is quite spread out. According to measurements taken from Google Earth, the distance from the Expo 2008 site and the HSR station is almost a mile in length, a situation that is likely to prevent most station users from walking the iconic pedestrian bridge. The Zaragoza Bridge Pavilion is also quite far from the station itself, about one-half mile. A gondola, named Gondola Aramón Zaragoza 2008, was constructed from the Zaragoza-Delights Intermodal Station to an exhibit area for the Expo 2008.²⁰⁴ However, it was slated to only run for two years following the Expo 2008. It is not clear if it is still in operation.

Zaragoza currently has no urban rail transit, such as an underground metro or light-rail. Therefore, buses are the primary mode of public transportation between the Zaragoza-Delights Intermodal Station and surrounding areas. The station does include Zaragoza's main coach and bus terminal.²⁰⁵ According to unconfirmed articles from the local press, there has been much controversy about moving all rail services to a location outside of the city center and whether the new HSR station has improved transportation in Zaragoza or actually had a negative impact.²⁰⁶ According to many residents, buses have not served the population well, especially at night. There are also concerns about the design of the station for making easy connections to taxis, buses, and parking areas. There are plans for a subway station and a new bus station at El Portillo site, which could improve the situation dramatically.²⁰⁷

²⁰³ Expo Zaragoza (official website), "Expo Zaragoza 2008: Edificios," http://www.expozaragozaempresarial.com/expozar_edificios_emblematicos.asp (accessed December 11, 2010).

²⁰⁴ Dictionaries and Encyclopedias on the Academic, "Gondola Aramon Zaragoza 2008," <http://www.esacademic.com/dic.nsf/eswiki/1131456> (accessed October 31, 2010).

²⁰⁵ Hotels-n-Europe.com, "Train Station Accommodation – Spain," <http://www.hotels-n-europe.com/rail/spain.html> (accessed November 1, 2010).

²⁰⁶ Wikipedia, "Estacion de Zaragoza-Delicias," http://es.wikipedia.org/wiki/Estaci%C3%B3n_de_Zaragoza-Delicias (accessed May 15, 2010).

²⁰⁷ MIT School of Architecture and Planning and the City of Zaragoza, Spain, 8.

3.2.4 Urban Design

The Zaragoza-Delights Intermodal Station is a modern and massive structure, enclosing a long stretch of track. The building is quite dramatic, but boxy (see Figure 8). The preservation of the original station at the site does provide an interesting juxtaposition between old and new architecture. The structures built for the Expo 2008 are visually unique and striking. This unique environment is set aside in its own location, separated from much of the existing urban fabric by the intervening river. Therefore, one can interpret the urban design to be a modern city within the context of a historic city. The Milla Digital projects have the potential to create a new type of urban design based on the interface of the public and new technologies. According to a Massachusetts of Technology study, “It [Milla Digital] is an entirely new package of public space infused with digital communications technology.”²⁰⁸ The project is designed to showcase Zaragoza as a city of innovation.

3.2.5 Conclusions

Zaragoza’s aggressive public-sector involvement to envision the development for both the Milla Digital project and the reuse of buildings from the Expo 2008, indicates a high level of public-sector leadership in the effort to maximize benefits from HSR. As was the case with Lille, strong leadership from the Zaragoza’s mayor helped to drive the planning of bold development. Procuring the Expo 2008 also indicates very strong local leadership. It may also be the case that the presence of a the new HSR station, which opened in 2003, helped Zaragoza compete more effectively for Expo 2008, demonstrating the potential synergies that HSR can create in terms of raising a city’s profile, which in turn can lead to economic development. The direct economic benefits are not clear yet. However, the planning is clearly designed to aggressively attract the types of business that are likely to dominate the twenty-first century.

Zaragoza’s foresight to plan the Expo 2008 in a way that allowed for many of the structures to be reused as a dynamic mixed-use complex, demonstrates sophisticated planning. Additionally, the continued presence of dramatic and unique architecture associated with the Expo 2008 is likely to bolster Zaragoza’s tourism industry. It is clear that public-sector leadership has done much to realize economic benefits related to the HSR station.

New development plans also demonstrate sophisticated planning. The land use mix contained in plans for the Milla Digital projects indicates a high awareness of the types of land uses that are synergistic with HSR. The focus on the information economy and providing services such as temporary and flexible office spaces and hotels oriented towards the business traveler, reflects land-use planning that mirrors the lessons learned from the literature.

Connecting transportation to and from the Zaragoza-Delights Intermodal Station is another issue. The closing of the former El Portillo railway station in the city center has eliminated rail access to the city center. Furthermore, Zaragoza does not have any metro or light-rail service. This situation is problematic in terms of tying the old city together with new development areas. The removal of the El Portillo railway station has caused a reduction in access to the historic core

²⁰⁸ MIT School of Architecture and Planning and the City of Zaragoza, Spain, 8.

city. As previously mentioned, this situation may be remedied if a subway station and bus station are eventually built at El Portillo site.

Despite the lack of good access between the new Zaragoza-Delights Intermodal Station and the city center in the near-term, ongoing development related to the Milla Digital and the Expo 2008 is likely to promote economic activity. Overall, the government's involvement in new development has been visionary and intelligent, but it would be advisable for Zaragoza to accelerate plans to improve public transportation from the Zaragoza-Delights Intermodal Station to the city center and the Expo 2008 site through the creation of new rail connections.

3.3 KYOTO, JAPAN (KYOTO STATION)

The focus of the Kyoto, Japan case study takes a different approach than the Lille and Zaragoza case studies described above. Rather than examining in detail the development surrounding the station, this case study examines the multiple land uses and activities provided within buildings that are a part of the HSR station complex. The purpose is to emphasize the potential of incorporating a significant amount of development within the footprint of HSR station buildings. Given the large space at the station sites in Fresno and Bakersfield, each city has the potential to construct a station of significant size that could incorporate various land uses.

Kyoto City is located in central Japan,²⁰⁹ and had an estimated population of 1,466,321 in 2005.²¹⁰ It sits in between Osaka to the southwest and Nagoya and Tokyo metropolitan areas to the northeast (see Figure 12). Kyoto has one main railway station that accommodates the Tokaido Shinkansen HSR service along with numerous local and regional rail and bus services.²¹¹ This station is referred to as Kyoto Station.

The Tokaido Shinkansen line is operated by the Central Japan Railway Company (JR Central).²¹² The West Japan Railway Company (JR West) operates an urban and regional network of train lines serving the Kyoto-Osaka-Kobe area. Many of these lines serve Kyoto Station.²¹³ Therefore, both companies have a presence at the Kyoto Station. JR West participated in the development of the existing Kyoto Station and currently operates various businesses connected to the real estate within the station complex. JR Central focuses its real estate activities in Nagoya and the Tokyo areas.²¹⁴ Both JR Central and JR West were created when the Japanese National Railways were split and privatized into six private railway companies in 1987.

²⁰⁹ Google maps, <http://maps.google.com/maps?hl=en&tab=wl> (accessed December 11, 2010).

²¹⁰ Kyoto City Web, "City Data - People," <http://www.city.kyoto.jp/koho/eng/databox/citydata/people.html> (accessed October 28, 2010).

²¹¹ Chris Rowthorn et al., *Japan*, (Melborne, Oakland, London, and Paris: Lonely Planet Publications Pty Ltd, October 2003), 333, 374-376.

²¹² Central Japan Railway Company, "2007 Annual Report", http://english.jr-central.co.jp/company/ir/annualreport-backnumber/_pdf/report-2007.pdf (accessed October 28, 2010), profile page (preceding page 1).

²¹³ West Japan Railway Company, "Establishing Solid Foundations: Annual Report 2010", <http://www.westjr.co.jp/english/english/company/con02/library/annual/2010/index.html> (accessed October 28, 2010), 13, 76-77.

²¹⁴ Central Japan Railway Company, "2007 Annual Report", http://english.jr-central.co.jp/company/ir/annualreport-backnumber/_pdf/report-2007.pdf (accessed October 28, 2010), profile page (preceding page 1) and 24.

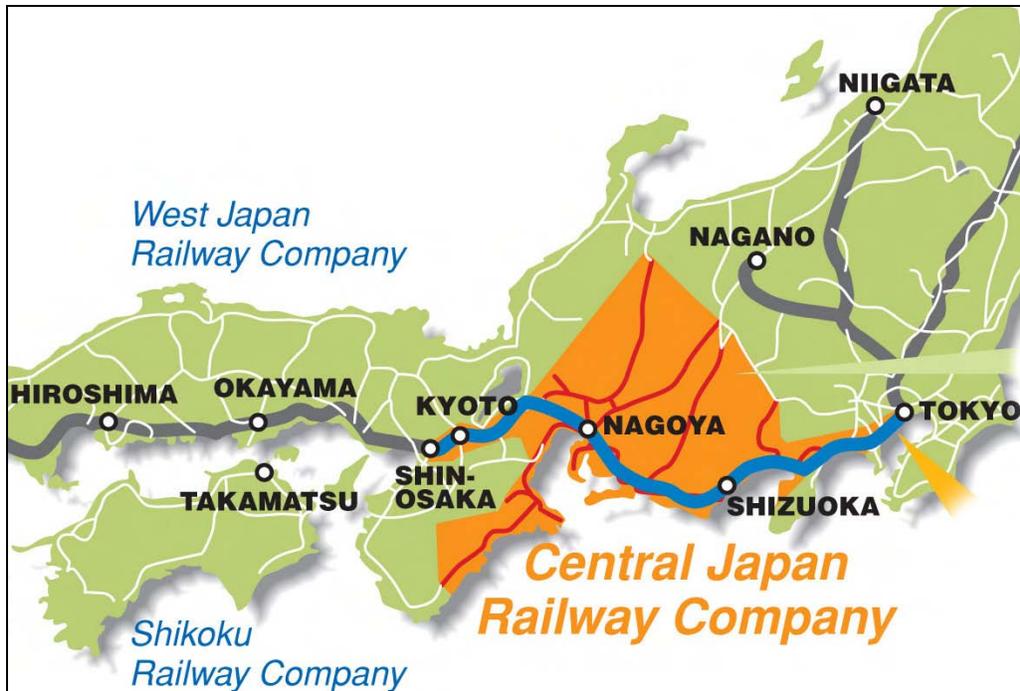


Figure 12. Location of Kyoto, Japan along the Tokaido Line of the Shinkansen system.

Note: Tokaido Line is shown as the blue line.

Source: Central Japan Railway Company, “2007 Annual Report”, http://english.jr-central.co.jp/company/ir/annualreport-backnumber/_pdf/report-2007.pdf (accessed October 28, 2010), 8.

3.3.1 History

Kyoto Station has occupied the current site, located in the southern portion of the Kyoto City, since 1877.²¹⁵ The station buildings have been rebuilt three times, making the current Kyoto Station the fourth generation station structure. In 1964, HSR began service to Kyoto Station (the one preceding the current station complex) when Japan’s first HSR line – the Tokaido Shinkansen – opened between Tokyo and Osaka.²¹⁶ The Kyoto Station has therefore accommodated HSR service for over 40 years. This HSR service was operated by publicly-owned Japanese National Railways until 1987, when the private company JR Central took over operations.

In the early 1990s, in response to modernization efforts in Osaka and Tokyo, the City of Kyoto decided to pursue the development of a more modern Kyoto Station as part of efforts to stay relevant economically.²¹⁷ Goals for the development of the new Kyoto station included an improvement of the public transportation system, an increase in tourism, and the revitalization of the urban area. Kyoto City decided to focus the station design on strengthening its status as a

²¹⁵ Tiry, 18.

²¹⁶ Central Japan Railway Company, “2007 Annual Report”, http://english.jr-central.co.jp/company/ir/annualreport-backnumber/_pdf/report-2007.pdf (accessed October 28, 2010), profile page (preceding page 1) and 14.

²¹⁷ Tiry, 18.

cultural and tourism center, as opposed to Lille and Zaragoza, which focused more on attracting business by planning for large amounts of new office space. A design competition was held, and a winner was announced in 1991: architect Hiroshi Hara. There were critics of the Kyoto Station project due to the contrast between its modern design and the historic character of Kyoto.²¹⁸ However, the project moved forward, and the current Kyoto Station opened for service in 1997.

3.3.2 Land Uses within Kyoto Station

According to Toshiyui Goto, privatization of Japanese National Railways brought a renaissance of railway station development around Japan.²¹⁹ Kyoto Station, according to Goto, is “a town at the station” due to all the activities that are in harmony with one another. The wide range of land uses within the Kyoto Station complex has established the facility as a destination in and of itself – a gateway attraction to the many nearby historical sites that greets many of the over 40 million people who visit Kyoto annually.²²⁰ The Kyoto Station complex consists of the following (see Figure 13): a 15-story super structure on the north side of the tracks that contains a wide range of land uses; 2) a long building on the south side of the tracks that serves as a southern entrance for both the Shinkansen trains and other trains; 3) two pedestrian walkways, one elevated and one subterranean, that connect the north and south sides of the station and provide access to the station platforms; and 4) a bus station on the north of the station complex.²²¹

Land uses within the north station building (see Figure 14 and Figure 15) include several food courts (including the Kyoto Ramen Koji, an entire floor dedicated to ramen restaurants), a game center, a department store (JR Kyoto Isetan), a four-level specialty store mall and club (The Cube), and the Kyoto Prefectural International Centre.²²² Other uses in the building include a 539-room hotel (Hotel Granvia Kyoto), a travel agency (Nippon Travel Agency), a cinema (Kyoto Theater), a museum, exhibition venues, and parking. Other attractions of the building include an observation deck on the 15th floor called the Happy Terrace, which provides panoramic views of Kyoto, and an aerial sky-walk at the 11th floor level that traverses the structure, providing views of southern Kyoto.

²¹⁸ Rowthorn et al., 333.

²¹⁹ Toshiyui Goto, “New Stations Based on Philosophical Reunion of Diverse Technology,” *Japan Railway and Transport Review* 28, September 2001, 7-8.

²²⁰ Tiry, 18-19.

²²¹ Kyoto Station Building (official website), http://www.kyoto-station-building.co.jp/map_en/kyoto_station_building_kyoto_station.pdf (accessed November 1, 2010).

²²² Tiry, 19; Rowthorn et al., 333; Gizmodo.com, “Kyoto Station is the Ultramodern Heart of Kyoto,” <http://gizmodo.com/311742/kyoto-station-is-the-ultramodern-heart-of-kyoto> (accessed October 26, 2010); Kyoto Station Building (official website), http://www.kyoto-station-building.co.jp/map_en/kyoto_station_building_kyoto_station.pdf (accessed November 1, 2010); The Cube (official website), <http://www.thecube.co.jp/> (accessed November 1, 2010).

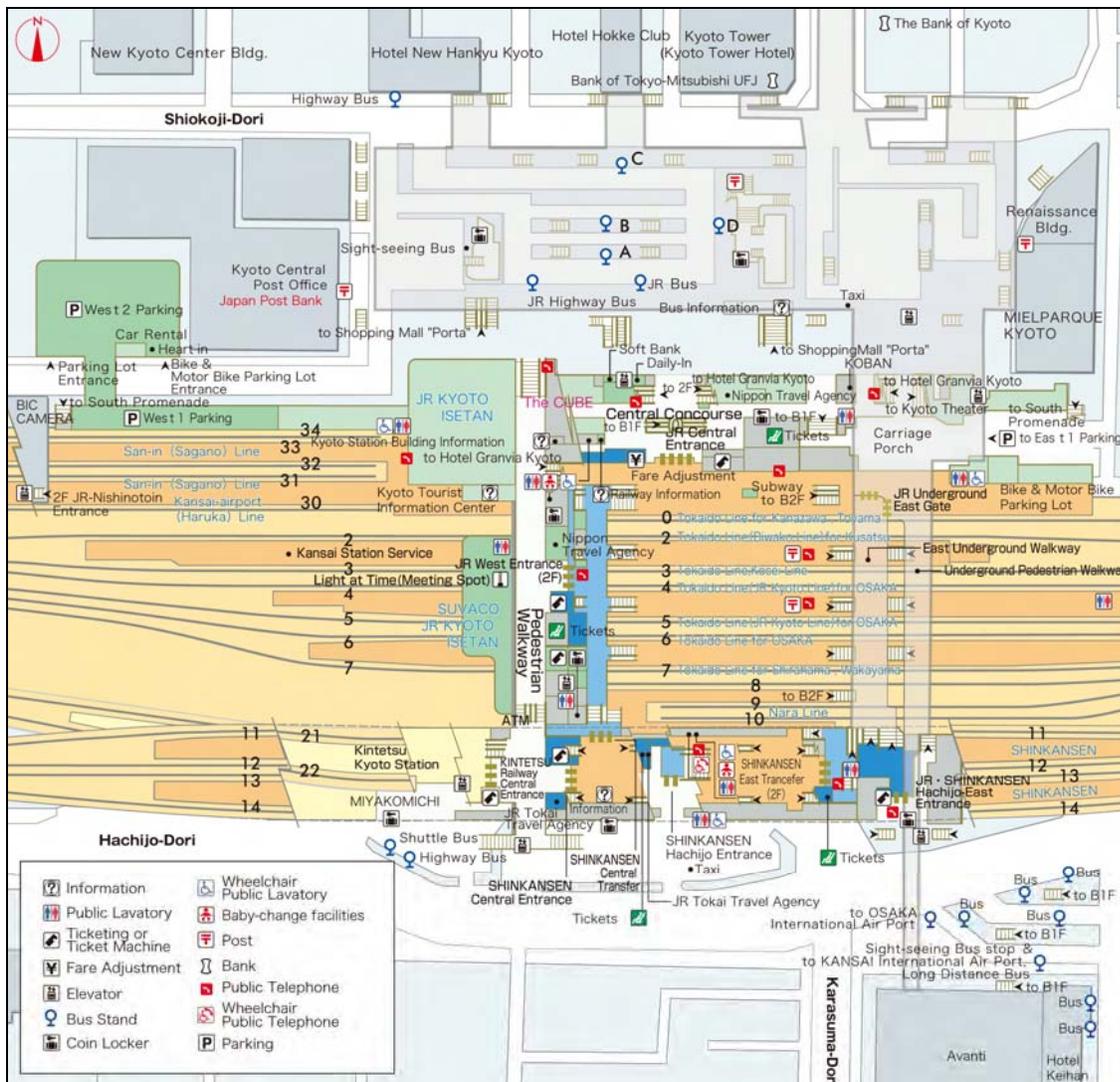


Figure 13. Land uses at and around Kyoto Station.

Source: Kyoto Station Building (official website): http://www.kyoto-station-building.co.jp/map_en/kyoto_station_building_kyoto_station.pdf (accessed November 1, 2010).

The south station building (see Figure 13 and Figure 15) contains the Shinkansen area of the Kyoto Station, the JR Tokai travel agency, and three southern entrances to Kyoto Station (one entrance for the Kintetsu railway lines and two for Shinkansen).²²³ The elevated pedestrian walkway over the tracks also includes another Kyoto Isetan department store and additional location for the Nippon Travel Agency. The Porta Shopping Mall is located under the bus station at the north portion of the station complex.

²²³ Kyoto Station Building (official website), http://www.kyoto-station-building.co.jp/map_en/kyoto_station_building_kyoto_station.pdf (accessed November 1, 2010).

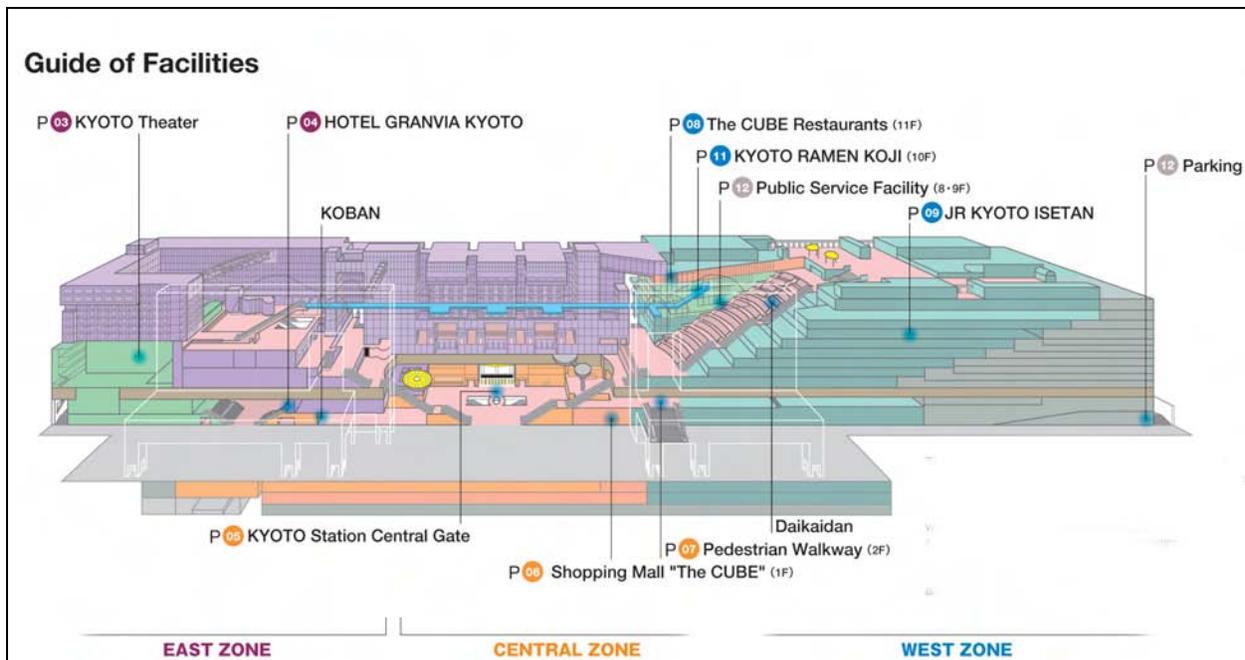


Figure 14. Layout of land uses within the north structure of Kyoto Station.

Source: Kyoto Station Building (official website), http://www.kyoto-station-building.co.jp/map_en/guide_of_facilities.pdf (accessed November 1, 2010).

In addition to operating numerous rail and bus lines to Kyoto Station, JR West has established several subsidiary companies that do business related to the commercial enterprises at the Kyoto Station complex.²²⁴ These companies include the Kyoto Station Building Development Co., Ltd. and Kyoto Station Center Co., Ltd., which are both involved in real estate leasing; the West Japan Railway Isetan Ltd., a department store; and Nippon Travel Agency Co., Ltd. Therefore, many of the transit operations and the station land uses are managed by JR West.

In contrast to Lille and Zaragoza, JR West's focus is not on attracting information-sector businesses. Rather, JR West focuses on promoting their tourism-based business ventures and providing commercial and other services that cater to tourists. Though not directly attributable to the commercial development and other attractions within the Kyoto Station development, indications are that this focus on tourism is working.²²⁵ Record numbers of tourists visited Kyoto in six consecutive years from 2001 through 2006, with 48 million in 2006. A possible economic side benefit is the declining vacancy rates in recent years (though it is not clear what has happened to vacancy rates since the global economic recession).

²²⁴ West Japan Railway Company, 13 and 76-77.

²²⁵ Nikkei Real Estate Market Report, "Kyoto," October 1, 2008, <http://realestate.nikkeibp.co.jp/re/members/news/20081010/527052/> (accessed October 26, 2010).



Figure 15. Kyoto Station.

Sources: Upper-left image is of the main entrance into the north building of Kyoto Station. Upper-center image is a view of an entrance into the south building of Kyoto Station. Right image shows the expansive atrium within the north building of Kyoto Station. Lower-left image is a view of the main pedestrian promenade of the north building of Kyoto Station.

Sources: Image at upper left: Screen name “663highland” (2008), http://en.wikipedia.org/wiki/File:JR_Kyoto_sta01nt3200.jpg (accessed October 30, 2010); Image at upper center: Terence Ong (2006), http://commons.wikimedia.org/wiki/File:Kyoto_Station_15.JPG (accessed October 30, 2010); Image at right: Gizmodo website (no individual name or year given), <http://gizmodo.com/311742/kyoto-station-is-the-ultramodern-heart-of-kyoto> (accessed October 30, 2010); Image at lower left: No name or year given, <http://commondatastorage.googleapis.com/static.panoramio.com/photos/original/24424987.jpg> (accessed October 30, 2010).

3.3.3 Land Uses around Kyoto Station

The land uses around Kyoto Station reflect Kyoto’s status as a major destination for tourism. In addition to Hotel Granvia Kyoto in the station itself, numerous hotels are located in the immediate vicinity of Kyoto Station (see Figure 13).²²⁶ The Kyoto Tower, which is located immediately north of the Kyoto Station bus depot, is another major landmark and tourist destination. A main post office, banks, and various other office buildings also lie within this area.

A major new shopping center, named the AEON Mall Kyoto, is currently being developed immediately south of Kyoto Station.²²⁷ This development has been encouraged by Kyoto City’s “Kyoto Station South Exit Neighborhood Area Town Development Guidelines,” which aims to attract new facilities to the area. Again, the focus is on retail development rather than on attracting office-based businesses.

²²⁶ Kyoto Station Building (official website), http://www.kyoto-station-building.co.jp/map_en/kyoto_station_building_kyoto_station.pdf (accessed November 1, 2010).

²²⁷ Shimizu Corporation and AEON Mall Co., Ltd., “News Release,” April 20, 2010, http://www.jnto.go.jp/eng/topics/pdf/aeon_mall20100712.pdf (accessed October 30, 2010).

3.3.3 Connecting Transportation

The connecting transportation infrastructure is extensive. Though the station is not in the historic area of Kyoto or the central business district, the station is extremely well connected by local and regional rail and bus services. A municipal subway line runs directly under Kyoto Station, providing easy access to the city's two-line subway system and the historic areas of Kyoto City.²²⁸ JR West also operates six train lines to Kyoto Station. Kintetsu Railway also operates trains to the station. The bus terminal includes several bus services, including Nishi-nihon JR Bus, Keihan Bus, Keihan Kyoto Bus, and Kyoto Bus.

3.3.4 Urban Design

Kyoto Station contains extremely large structures, especially the main structure on the north side of the station. This structure covers a floor area of 238,000 m² (2,561,810 sq. ft.) and runs 470 m (1542 ft.) in length.²²⁹ The architectural style is very modern, providing a stark contrast to the historic elements for which Kyoto is famous. The structure is glass and steel with huge interior public spaces (see Figure 15).

3.3.5 Conclusions

The experience in Japan with privatizing the operations of railways and allowing the rail operators to develop and manage commercial enterprises within the railway station has led to some large station developments. Kyoto Station is a stunning example of how much can be done at a HSR station if conditions are conducive to development. It seems clear that allowing private railway companies to be involved in the real estate aspect of stations provides the right motivation to maximize economic development associated with HSR.

Kyoto Station is an example of how a private entity can approach development holistically to make the station itself a real destination. The massive amount of development at Kyoto Station, and its success in increasing tourism activity, provides an excellent example for study. For Fresno and Bakersfield, it may be worth considering contracting out the development and design of the station buildings to private developers. As the literature has pointed out, transportation engineers under the purview of a public agency are likely to have little interest in designing stations beyond their function as a transportation facility. Both Fresno and Bakersfield have the space that could accommodate a dramatic station development. Furthermore, it might be worth considering commissioning developers to produce station design and land use concepts immediately.

²²⁸ Shimizu Corporation and AEON Mall Co., Ltd., "News Release," April 20, 2010, http://www.jnto.go.jp/eng/topics/pdf/aeon_mall20100712.pdf (accessed October 30, 2010).

²²⁹ ArchiTravel: Online Architectur Guide, "Kyoto Station Building," <http://www.architravel.com/architravel/building/80> (accessed October 26, 2010).

Chapter 4: Transit-Oriented Development Guidelines

This chapter outlines general guidelines for the cities of Fresno and Bakersfield that are not site specific, but conceptual in nature, based on conclusions from the literature review in Chapter 2 and the lessons learned from the cases studies discussed in Chapter 3. These general guidelines also focus on information gathered within the literature that focuses on cities that are mid-sized and intermediate (i.e. cities that are located between two or more larger metropolitan centers). Guidelines presented in this chapter inform the assessment of current planning efforts in Fresno and Bakersfield (see Chapter 6 and Chapter 9 respectively) in regards to TOD for areas surrounding their HSR station sites.

4.1 LAND USE GUIDELINES

Land use guidelines are focused on what uses should be placed in close proximity to HSR stations (i.e. approximately a half-mile radius around the center point of planned station sites). However, specific recommendations for Fresno and Bakersfield (see Chapters 7 and 10 respectively) go slightly beyond a half-mile radius in their scope to account for various features and assets their downtowns have to offer. For example, the existing conference center in Fresno is slightly farther from the planned HSR station than a half-mile, as is the main office district in downtown Bakersfield. That said, plans for land use would ideally focus the most intense land uses within a half-mile radius to provide efficient accessibility and place-making opportunities that are well integrated with the HSR stations.

4.1.1 Office

- Prioritize office space with a focus on accommodating information-based businesses and other businesses where long-distance travel is typical. Ensure office space is developed in the context of a dynamic mix of uses so that the environment is not lifeless after business hours.
- Ensure that some office space be allotted as rental meeting facilities for business people attending meetings at “half-way” locations between large metropolitan areas. These facilities should be located a short walk from HSR stations.
- Encourage the inclusion of flexible workspaces for use by out-of-town consultants and others who may only need temporary office space. These facilities should be located a short walk from HSR stations.

4.1.2 Conference Centers

- Expand and modernize existing conference centers in anticipation of HSR.

4.1.3 Residential

- Include a significant amount of residential development, with a mix of for-sale and rental units that cater to professionals who often travel long-distances.

- Provide corporate and temporary housing options that cater to people on work assignments.

4.1.4 Commercial/Tourism

- Create destinations that will draw leisure tourists. Consider major destinations such as themed-entertainment complexes.
- Develop HSR station structures to be major destinations that include entertainment, shopping, hotels, public plazas, etc.
- Establish or expand cultural attractions, such as museums, so they are of sufficient size and stature to draw leisure tourists taking HSR from other cities.
- Consider hosting a large-scale event with national and international significance, such as an exposition, that would include the construction of architecturally unique buildings. Such structures should then be re-used for the creation of mixed-use business centers or other uses compatible with HSR.

4.1.5 Hotels

- Provide sufficient hotel space. However, ensure that hotels are not overbuilt by conducting careful marketing studies based on the travel patterns of both leisure tourists and business travelers likely to use HSR.

4.2 TRANSPORTATION GUIDELINES

Guidelines for transportation focus on infrastructure that provides multimodal access to HSR stations from areas immediately around stations (i.e., approximately a half-mile radius), as well as surrounding regions.

4.2.1 Automobile-Related Infrastructure

- Delineate direct routes from highways and streets to the parking garages that avoid city streets as much as possible.
- Create improvements to highways and streets that lead to/from parking structures associated with HSR stations, especially in terms of capacity enhancement.
- Provide sufficient parking to accommodate the large catchment area of HSR users, especially given the generally low-density nature of the SJV. Consider starting with less parking to gauge demand, but reserve space for additional parking if it becomes necessary.
- Ensure parking structures are an easy walk to the HSR. Avoid parking lots in locations that require shuttling. An additional shuttle trip will likely depress ridership, especially for time-sensitive clientele.
- Pursue spacing-saving designs for parking structures.

4.2.2 Public Transportation Systems

- Develop and enhance regional commuter and intercity rail services that connect with HSR stations.
- Develop bus rapid transit systems along major urban and suburban corridors. Ensure that all lines converge at HSR stations.
- Consider developing light-rail and/or streetcar systems along the busiest urban corridors.

4.2.3 Bicycle and Pedestrian Networks

- Develop robust and safe networks of bicycle lanes and paths that converge at HSR stations.
- Provide secure bicycle parking facilities within HSR stations.
- Develop new pedestrian-only corridors and expand existing ones so that networks of pedestrian space connect directly to HSR stations.
- Develop a robust system of signage so all connecting modes of transportation are easily navigated.

4.3 URBAN DESIGN GUIDELINES

The focus of these urban design guidelines relate to HSR stations and other associated facilities. They do not relate to the surrounding urban environment.

- Integrate HSR parking structures into mixed-use buildings to conceal their presence as much as possible.
- Design the HSR station to be vertical in configuration so as to facilitate efficient multimodal transfers. Avoid sprawling horizontal station designs. Given the likelihood of elevated HSR platforms, consider locating bus stops directly underneath. Consider locating future commuter rail directly below or adjacent to HSR stations.
- Pursue bold and dramatic station designs.

4.4 PUBLIC-SECTOR INVOLVEMENT GUIDELINES

The literature emphasizes the importance of public-sector involvement and leadership associated with TOD. The complex nature of coordinating private development and the creation of HSR stations and related public infrastructure requires bold vision and ongoing leadership from city officials and politicians. If strong action is not taken, the likelihood of reduced economic benefits will dramatically increase.

- Aggressively pursue station area planning. Work with the Authority to access funds for these efforts. Consider conducting specific plans for station areas. As part of this process, include a series of community meetings that educate residents and policymakers about

Transit-Oriented Development Guidelines

the unique characteristics of HSR stations and what types of land uses promote economic development.

- View station-area planning as a long-term process that requires constant attention.
- Develop a strong vision for HSR station areas with a high level of community and political support.
- Closely coordinate city goals with the Authority. Avoid taking a passive approach with the Authority. Consistently engage the Authority on design issues regarding station and track structures.
- Identify key parcels for redevelopment and work to assemble land where necessary to facilitate development.
- Consider commissioning developers to produce station area development concepts. Consider contracting the construction of the station itself to private developers in partnership with the Authority.
- Explore funding sources such as grants for station area planning and for public infrastructure improvements associated with the HSR station area.

PART TWO

FRESNO: STUDY AREA CHARACTERISTICS, PLANNING PROFILE, AND RECOMMENDATIONS

Part Two and the following Part Three form the core of this research report, which examine how effectively the cities of Fresno and Bakersfield are responding to the opportunity that high-speed rail stations offer in terms of economic development. Part Two discusses Fresno, first by examining the characteristics of the study area around the planned high-speed rail station, as well as the opportunities and constraints therein (Chapter 5). Then, a discussion follows describing the existing planning policies, as well as current planning efforts that the City of Fresno is undertaking to prepare for high-speed rail (Chapter 6). Based on the opportunities and constraints of the Fresno Study Area and the assessment of planning being pursued, a set of specific recommendations for Fresno is provided (Chapter 7).

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Chapter 5: Fresno Study Area Characteristics

This chapter examines the characteristics of the Fresno Study Area (FSA) discovered from site visits and interviews with local officials and stakeholders. First, an overview of geographic characteristics and key features is given, along with a discussion of how they relate to the planned HSR station. Then, opportunities for and constraints to TOD within the study area are examined.

5.1 FRESNO STUDY AREA OVERVIEW

The FSA, located in the downtown area of Fresno (see Figure 16), consists of a geographic area that surrounds two sites along the Union Pacific Railroad (UPRR) right-of-way (ROW) that are seriously being considered for the planned HSR station (see Figure 17).²³⁰ The FSA encompasses the core of downtown, which is located to the east, northeast, and southeast of these HSR station sites. The FSA also encompasses the area between the UPRR ROW and State Route 99 (SR 99), as well as a few blocks west of SR 99. The FSA is defined to include important land uses and attractions that are likely to be relevant to HSR. That said, generally the FSA is limited to an area not exceeding a three-quarters-mile radius around the station sites in any one direction.

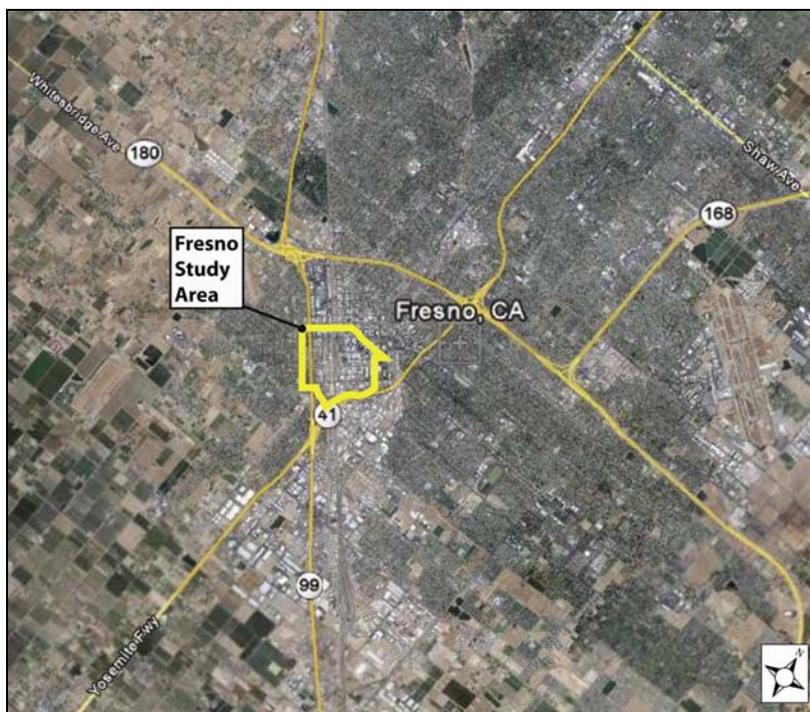


Figure 16. Fresno Study Area vicinity map.

Source: Image created by author. Base aerial image courtesy of Google Earth (2010).

²³⁰ John Dugan, Planning and Development Director, Development and Resource Management Department, City of Fresno, in a personal interview, Fresno, CA, September 9, 2010; Jan Minami, Executive Director, Downtown Association of Fresno, in a personal interview by author, Fresno, CA, September 8, 2010; Lupe Perez, Project Manager, Redevelopment Agency of the City of Fresno, in a personal interview, Fresno, CA, September 9, 2010.

Of the two station sites being seriously considered, the one preferred by city officials is located on the east side of the UPRR ROW, somewhere between Toulumne Street to the north and Inyo Street to the south, though the exact location will be determined at a future date.²³¹ There is still a slight possibility that the station will be located on the west side of the UPRR ROW. However, this location is not favored by city officials and other stakeholders because the wide UPRR ROW (over 100 feet in width) would sit between the station and the core of downtown, creating a significant barrier. It is still being considered by the Authority because of technical issues in bringing HSR to downtown Fresno. The HSR tracks and station platforms will be elevated approximately 60 feet in height.

Running eastward from the station sites along Mariposa Street are several civic buildings and facilities, which include the pedestrian-only Mariposa Mall (which connects to Fulton Mall and is a portion of Mariposa Street), the historic Security Bank Building, Courthouse Park (which includes an operating courthouse), a set of various governmental offices, Eaton Plaza, the historic Fresno Water Tower, and City Hall. Fulton Mall, likely to be located two blocks east of the future HSR station, is a pedestrian-only street that runs for six blocks from Toulumne Street to the north and Inyo Street to the south. Various shops and offices are located along Fulton Mall. East of the station sites, between Tulare and Inyo Streets, is Chuckchansi Park, a stadium used for minor league baseball and other events. Kern Street, east of Chuckchansi Park, is another east-west-running street that has sections that are pedestrian-only. Kern Street leads to the main entrance of the Fresno Convention Center and to the Fresno's Amtrak station. The Fresno Convention Center is part of a complex located in the southeastern portion of downtown that includes William Sarayon Theater, Ernest E. Valdez Hall, Selland Arena, and the Robert A. Schoettler Conference Center. Nearby is a large Radisson Hotel.

Various office buildings populate the core downtown area, many of them related to governmental functions. A large number of surface parking lots along with several parking structures are located throughout downtown. The northern portion of downtown is defined by medical facilities as well as cultural and historical attractions. The southern portion of downtown, an area a few blocks north of SR 41, consists of small industrial properties, the historic Armenian Apostolic Church, and the 5th District Court of Appeals. Also included in the FSA is an area known as Chinatown, which is located between SR 99 and the UPRR ROW. Land uses in Chinatown consist of industrial (adjacent to the UPRR ROW), small-scale commercial, housing, and a homeless shelter. Immediately north of Chinatown are several large industrial properties. Additionally, a small area just west of SR 99 falls within the FSA and consists primarily of housing and a shopping center. There are also numerous vacant lots.

UPRR currently runs freight trains along their ROW adjacent to the HSR station sites.²³² There is currently no train station near the HSR station sites. However, there is a former train station building of historical significance located immediately east of the UPRR ROW just north of Tulare Street, which is currently occupied by offices and a school.

²³¹ Ibid.

²³² California High Speed Rail Authority, "Jan. 19, 2010 Fresno Public Information Meeting: Map A," http://www.cahighspeedrail.ca.gov/images/chsr/20100126201033_FresnoPIMMapA2010-01-19.pdf (accessed May 10, 2010).

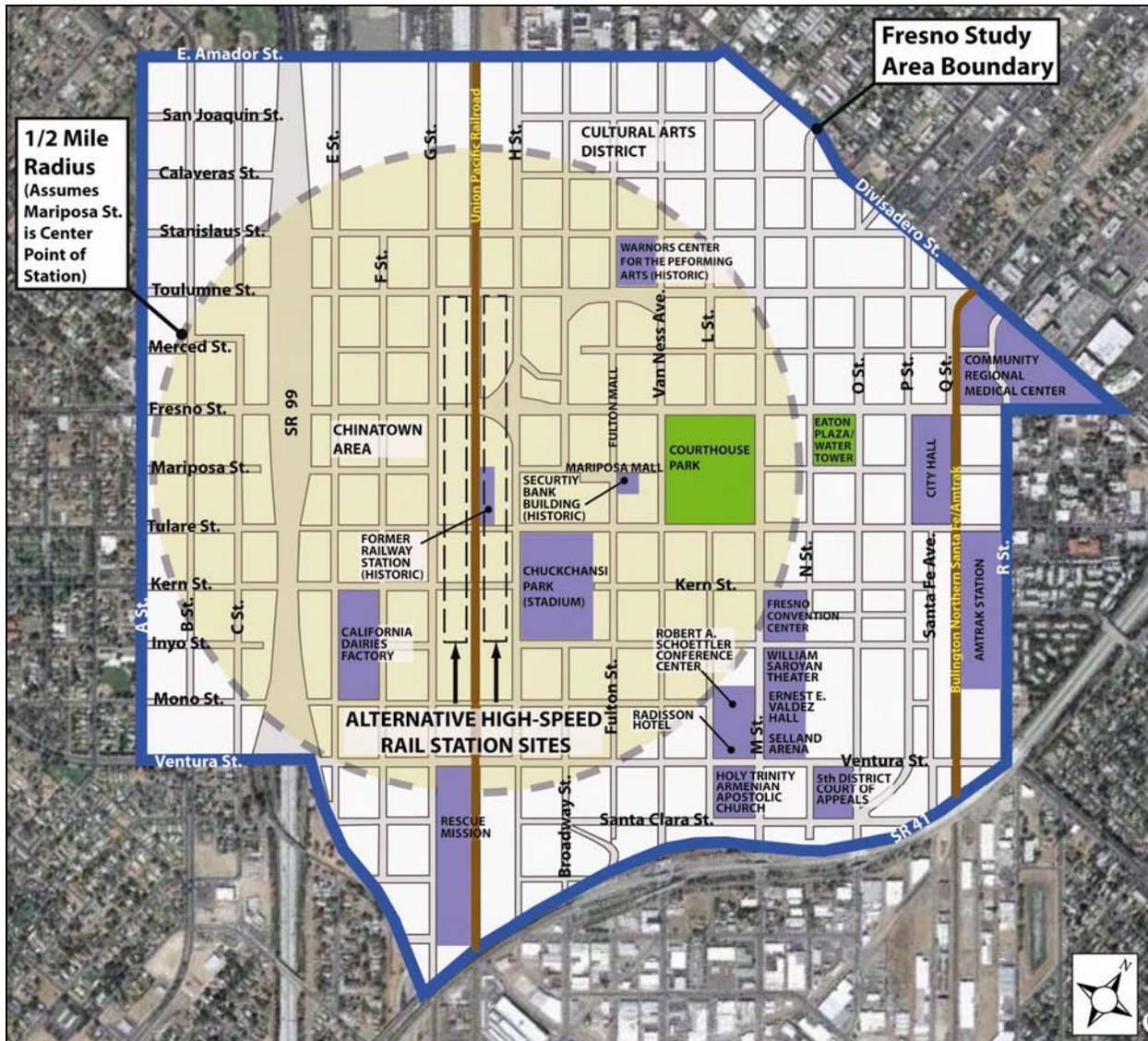


Figure 17. Fresno Study Area.

Source: Map created by author (2010). Base aerial image courtesy of Google Earth (2010).

5.2 OPPORTUNITIES

The Fresno Study Area presents a wide range of opportunities for TOD related to HSR. Opportunities are discussed below in terms of location, land use, historic resources, and transportation.

5.2.1 Location

The location of the FSA itself is a tremendous opportunity to exploit HSR service. Fresno’s geographic location will allow for rapid travel times to both San Francisco and Los Angeles on

HSR (planned for 1 hour and 20 minutes and 1 hour and 24 minutes respectively).²³³ These relatively short travel times will likely help promote Fresno as a place to do business, both in terms of businesses establishing a presence in Fresno and as a mid-point meeting location.

Fresno is also ideally located as a gateway to the Sierra Nevada mountain range and the national parks of Yosemite, Kings Canyon, and Sequoia. In fact, a developer recently proposed a 40-acre theme park in Fresno, billed as a gateway to the Sierra.²³⁴ Leveraging Fresno's close proximity to these national parks combined with the development of robust public transportation connections to and from the planned HSR station, downtown Fresno has the potential to become a major jumping-off point for tourists.

5.2.2 Land Use

Fresno has a good foundation to build on in terms of land uses that support HSR. Most significantly, Fresno has an extensive convention/entertainment center (see Figure 18). Though already fairly large, one can envision this center expanding to become one of the most important and significant convention/entertainment centers in the state of California, given Fresno's location between San Francisco and Los Angeles.



Figure 18. Fresno Convention Center and William Saroyan Theater.

Note: Left image is of the main entrance to the Fresno Convention Center. Center image shows open land behind the Fresno Convention Center. Right image is a view of the William Saroyan Theater.

Source: Author (2010).

Fresno has approximately 1.5 million square feet of vacant office space in downtown.²³⁵ While this situation indicates poor economic conditions, it also presents an opportunity to provide affordable office space to businesses when the economy strengthens and HSR arrives. As documented in Chapter 2, businesses are known to relocate to smaller cities with HSR stations in search of relatively inexpensive rents. This baseline of vacant office space is likely to help attract an initial set of businesses before new office buildings are constructed. It may also be possible to convert some of this space into housing if demand warrants.

In addition to the availability of existing office space in underutilized buildings, there is a significant amount of land with a high potential for new office development, primarily in the

²³³ California High-Speed Rail Authority, "Interactive Map", http://www.cahighspeedrail.ca.gov/trip_planner.aspx (accessed on October 9, 2010).

²³⁴ Dugan interview.

²³⁵ Ibid.

form of numerous surface parking lots (especially concentrated near the HSR station site), and to a lesser extent, vacant land (mainly west of the UPRR ROW and south of Ventura Street). These forms of underutilized land provide numerous development sites for office-focused TOD. New office development (as opposed to the existing stock of vacant office space) may be attractive to the large agricultural businesses the City of Fresno is interested in attracting.²³⁶

Fulton Mall, the six-block pedestrian street previously mentioned (see Figure 19), provides a significant opportunity for the redevelopment of adjacent low-rise structures into high-density, mixed-use development. Its location is only two blocks east of the planned HSR station (assuming the alignment east of the UPRR ROW is selected). This mall has been struggling economically for years,²³⁷ but the arrival of HSR and new TOD could give Fulton Mall the boost it needs to be more successful.



Figure 19. Fulton Mall in downtown Fresno.

Source: Downtown Association of Fresno website, <http://downtownfresno.org/fulton-mall.html> (accessed November 7, 2010). Left image is ascribed to Brad Polzin. Center and right images are not ascribed to any photographer.

The Chinatown district, just west of downtown, has a neighborhood commercial district, primarily along F Street and to a lesser extent along Tulare and Kern Streets. This area has the potential to be intensified to become more mixed-use in nature, which could help to revitalize the area.

5.2.3 Historic Resources

Fresno has several significant historic resources located in the downtown area in close proximity to the HSR station sites (see Figure 20). Warnors Center for the Performing Arts, the historic Old Fresno Water Tower and Visitors' Center in Eaton Plaza, the courthouse in Courthouse Park, the Holy Trinity Armenian Apostolic Church, and a variety of historic office buildings, give Fresno a large collection of historic assets. These assets, if marketed well, can be part of a strategy to attract

²³⁶ Ibid.

²³⁷ Minami interview.

tourists, especially those riding on HSR and getting off in Fresno on their way to attractions in the Sierra Nevada mountain range.



Figure 20. Examples of historic structures in downtown Fresno.

Note: Left image is of Warnors Center for the Performing Arts. Center image is of the Old Fresno Water Tower. Right image shows the Holy Trinity Armenian Apostolic Church.

Source: Image at left: Bobak Ha'Eri (2009), <http://commons.wikimedia.org/wiki/File:2009-0725-CA-Fresno-WarnorsTheatre.jpg> (accessed October 26, 2010); Image at center: Bobak Ha'Eri (2009), <http://commons.wikimedia.org/wiki/File:2009-0725-CA-FresnoWaterTower-F.jpg> (accessed October 26, 2010); Image at right: Bobak Ha'Eri (2009), <http://commons.wikimedia.org/wiki/File:2009-0725-CA-HolyTrinityArmenianApostolic.jpg> (accessed October 26, 2010).

5.2.4 Transportation

Downtown Fresno has a significant number of pedestrian-only spaces already in place. Building off this system of high-quality pedestrian circulation is ideal for encouraging HSR users to walk to destinations in downtown. Any redesign of Fulton Mall needs to consider a future with a HSR station and the likelihood that there will be much more pedestrian traffic generated as a result of a station.

There is efficient freeway access to downtown via SR 99 and Fresno Street (which is grade separation under the UPRR ROW). Fresno Street has the potential to provide efficient automobile access between future HSR station parking structures and SR 99. The numerous surface parking lots along Fresno Street just east of the UPRR ROW may be good candidates for HSR parking garages, which would allow many automobiles to access such parking garages without having to circulate through the downtown area.

5.3 CONSTRAINTS

Constraints to TOD around Fresno's future HSR station are discussed below in terms of land use, infrastructure, and transportation.

5.3.1 Land Use Constraints

While downtown Fresno has great potential to support TOD related to HSR, several factors related to land use may deter TOD. Vacant office space, vacant land, poor neighborhoods, noxious industrial businesses, and homeless facilities are challenges to creating dynamic TOD that promotes economic development.

As previously mentioned, the downtown area has an enormous stock of vacant office space in existing buildings – approximately 1.5 million square feet. This is due to the fact that so few

private businesses remain downtown.²³⁸ Of the approximately 30,000 people who work downtown, approximately 90% are public employees. This surplus of office space is likely to depress the construction of new mixed-use buildings that include offices around the HSR station until demand outweighs this available space. This process could take a significant amount of time (possibly well after the arrival of HSR), which could prevent the establishment of a new urban form immediately around the station. Further preventing new construction immediately surrounding the station are large swaths of vacant land within the UPRR ROW (see Figure 21). Such land would be an ideal location for new buildings as part of TOD around the HSR station. However, this land is owned by UPRR and there is no indication they will sell any of the land.²³⁹ Moving freight rail outside of downtown was recently considered, but is no longer being pursued. Therefore, the presence of UPRR in downtown Fresno is likely to continue indefinitely.



Figure 21. Union Pacific Railroad right-of-way.

Note: Left image is of vacant land along the UPRR ROW looking north. Right image shows vacant land along the UPRR ROW looking south.

Source: Author (2010).

Surrounding the downtown are numerous poverty-stricken neighborhoods, including neighborhoods in the western portion of the Fresno Study Area.²⁴⁰ Additionally, two mixed-use housing complexes are being developed in the Chinatown area that will provide dwelling units for single-occupants and low-income residents. These projects will further concentrate poverty west of downtown.²⁴¹ The problems associated with concentrated poverty, such as high crime rates, may suppress TOD west of the UPRR ROW.

Also concentrating poverty in the Chinatown area is the Rescue Mission homeless shelter, which is located immediately west of the UPRR ROW and south of the HSR station sites.²⁴² Additionally, the Rescue Mission owns a large amount of land at this site and has plans to significantly expand the homeless shelter. The Poverello House, which owns several blocks near the Rescue Mission, provides homeless services and shelter for woman. Though these are good causes, these types of

²³⁸ Dugan interview.

²³⁹ Ibid.

²⁴⁰ Minami interview.

²⁴¹ Perez interview.

²⁴² Ibid.

land uses are not supportive of HSR. However, given all the vacant office space and underutilized land, such as surface parking lots, these constraints may not be as significant in the near-term, as this land may not be needed initially for TOD. However, in the long-term, these land uses could curb development.

A presence of good museums with a regional draw supports tourism. Unfortunately, museums in Fresno have been struggling, and in fact, the Fresno Metropolitan Art Museum recently closed due to financial problems.²⁴³ Arte Américas Cultural Museum and African American Museum are also struggling financially. Museums are likely to be key attractions to leisure tourists. Fresno's rich history and location as a gateway to the Sierra Nevada mountain range and several national parks provides a great potential for the re-establishment of a strong museum presence in association with HSR service. However, given the current situation, a museum culture will have to be significantly rebuilt.

A more specific land use constraint may be the previously mentioned former train station building. This historic structure is situated on the HSR station site preferred by city officials (see Figure 22).²⁴⁴ Furthermore, a business center and a charter school are located in the building. City officials in Fresno are interested in exploring the possibility of integrating the building into the new HSR station. Another possibility being considered is the relocation of the building.

Another potential constraint is the presence of a large California Dairies factory in the Chinatown area. This factory has the potential to be an ongoing nuisance to surrounding residential areas and may deter the creation of TOD in its immediate vicinity.



Figure 22. Former train station building adjacent to the Union Pacific Railroad tracks and the California Dairies factory in Chinatown.

Source: Images at left and center: Author (2010); Image at right: California Dairies, <http://www.californiadairies.com/pop/fresno.htm> (accessed November 7, 2010).

Finally, the Authority's demand for 7,000 parking spaces could take a lot of space that would otherwise go to TOD.²⁴⁵ However, Lupe Perez, Project Manager for the Redevelopment Agency of the City of Fresno, would like to see space preserved in the immediate vicinity of the HSR station for development by reducing parking requirements adjacent to the station and constructing space-efficient parking garages.

²⁴³ Ibid.

²⁴⁴ Dugan interview; Perez interview.

²⁴⁵ Perez interview.

5.3.2 Infrastructure Constraints

A major concern of city officials is the potential for TOD to be hindered by the existing water system, which is inadequate to handle a significant level of growth in downtown Fresno.²⁴⁶ The Fresno water system is still based primarily on a system of 250 wells that pump groundwater.²⁴⁷ However, the water table has been dropping dramatically, reducing water pressure in downtown.²⁴⁸ Furthermore, due to the long economic decline of downtown Fresno, much of the water previously allocated to downtown is now assigned to other areas of Fresno. Significant and costly water upgrades will be necessary to support a large amount of growth in downtown, but currently there are no funds identified. Fees associated with new development could provide revenue for infrastructure upgrades, but this also has the potential to drive up development costs, potentially impacting Fresno's competitiveness.

5.3.3 Transportation Constraints

The Fresno Area Express (FAX), Fresno's transit service provider, operates a basic bus system that serves the FSA with seven bus lines and a free downtown circulator trolley.²⁴⁹ Currently, Fresno has no rapid transit lines. According to Jan Minami, executive director of the Downtown Association of Fresno, "A major overhaul of the public transportation system is needed." According to Ms. Minami, short-distance bus rides can take a long time because most bus routes goes through north Fresno and the free downtown circulator trolley is not comprehensive enough nor is it publicized adequately.²⁵⁰ A lack of rapid transit lines will likely limit access to the planned HSR station primarily to automobiles. This will necessitate the creation of more parking, significantly impacting the potential for TOD immediately around the station.

Currently, there is no direct public transportation system from Fresno to the national parks of Yosemite, Kings Canyon, or Sequoia. This lack of access is in contrast to the Yosemite Area Regional Transportation System bus network, which operates between Merced and Yosemite National Park.²⁵¹ Serving as a gateway to the national parks nearby will likely promote the economic activity of Fresno. To-date, there seems to have been little effort to leverage the national parks to promote Fresno's economy.

Another transportation related constraint is the existing location of Fresno's Amtrak station at the eastern edge of downtown. The planned HSR station is located approximately three-quarters of a mile west of the Amtrak station. This presents a significant obstacle to providing convenient

²⁴⁶ Dugan interview.

²⁴⁷ City of Fresno, "Water Information", <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/WaterInformation/Default.htm> (accessed on October 17, 2010).

²⁴⁸ Dugan interview.

²⁴⁹ Fresno Area Express, "System Map", <http://www.fresno.gov/NR/rdonlyres/E1B45744-443D-4575-BD2F-286945C54C04/0/FAXSYSMAPOCT2010.pdf> (access on October 19, 2010); Fresno Area Express, "Downtown Circulator Trolley", <http://www.fresno.gov/DiscoverFresno/PublicTransportation/Route/default.htm> (accessed on October 19, 2010).

²⁵⁰ Minami interview.

²⁵¹ Yosemite Area Regional Transportation System, "Service Map," <http://www.yarts.com/maps/stops.pdf> (accessed on November 7, 2010).

transfers between the two systems. Furthermore, the Authority is currently not planning to relocate the Amtrak line to run through the HSR station site, nor is the City of Fresno advocating for this connection.²⁵² A shuttle between the two stations may be instituted in place of a direct connection. This scenario may lead to a reduction in ridership for people who need to use both HSR and Amtrak to get to their final destinations, and reduce the utility of the HSR station itself. The primary challenges here are allowing Amtrak trains to be routed onto the UPRR ROW – which the UPRR would not likely support – and the additional cost of rerouting Amtrak.

²⁵² Dugan interview.

Chapter 6: Fresno Planning Profile

This chapter examines planning documents and studies, completed by governmental agencies and university-based institutions, that are relevant to TOD and HSR in Fresno. Furthermore, current planning efforts are examined to assess how effectively the City of Fresno is planning for TOD and HSR. Generally, existing planning documents relevant to Fresno have served to open the conversation about TOD and how best to accomplish it. However, there is little discussion in these documents as to how TOD specifically relates to the planned HSR station. Conversely, current planning efforts underway demonstrate that the City of Fresno is aggressively pursuing major changes to the entire planning framework that emphasizes TOD and how TOD relates to the planned HSR station.

6.1 EXISTING PLANS AND STUDIES

Existing plans and studies that are relevant to Fresno include both documents that cover the entire SJV and Fresno specifically.

6.1.1 San Joaquin Valley-Wide Plans and Studies Relevant to Fresno

A significant number of studies and plans that cover the entire eight-county SJV (see Figure 23) are relevant to the planning of TOD and HSR in Fresno. Generally, these studies and plans serve as a conceptual framework for the creation of more specific plans and policies within the City of Fresno.



Figure 23. Eight-county San Joaquin Valley.

Source: Map created by author (2010).

Discussion of development around HSR stations in the SJV began in earnest with two studies conducted by the Institute of Urban and Regional Development at the University of California, Berkeley in the 1990s. While both studies have no specific recommendations for Fresno (or Bakersfield), they are still very useful in terms of planning for TOD in the two cities. The 1993 study by Brian Sands, titled *The Development Effects of High-Speed Rail Stations and Implications for California*, concludes that it is critical that the state agency building the HSR station take both an active role in station area development and must work closely with local transportation authorities.²⁵³ Echoing these recommendations, and adding specific land use suggestions (discussed in the literature review chapter), is a 1996 study conducted by Robert Cervero, titled *High-Speed Rail and Development of California's Central Valley: Comparative Lessons and Public Policy Considerations*.²⁵⁴ The study emphasizes the need for commercial development while placing less importance on housing development. It also strongly recommends heavy public-sector involvement and coordination in the creation of TOD at HSR stations.

The Authority's 2005 *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System – Volume 1 Report* is the first document that contains official governmental plans for HSR in Fresno and Bakersfield.²⁵⁵ Specifically related to Fresno, the document identifies a downtown location for the Fresno station along the UPRR ROW, bolstering the likelihood of an urban TOD. The document also encourages local governments to prepare station-area plans and make changes to their general plans to encourage TOD.

The Authority followed up this plan with a much more detailed project-level environment document in 2010, titled *California High-Speed Train Project: Fresno to Bakersfield Section Preliminary Alternatives Analysis Report*. According to the report, three alternative station locations are being carried forward for inclusion in the draft EIR/EIS for the Fresno to Bakersfield section of the HSR project.²⁵⁶ Alternative station locations include: 1) immediately east of the UPRR ROW, between Stanislaus and Ventura Streets; 2) immediately west of the UPRR ROW, also between Stanislaus and Ventura Streets; and 3) a location in Chinatown. At-grade and elevated options for UPRR ROW alternatives are being carried forward for the alternatives adjacent to the UPRR ROW. A below-grade option is being carried forward for the Chinatown/Golden State Boulevard alternative. City officials have indicated that an elevated option is most likely to happen, as it is doubtful that the Chinatown option will be selected due to

²⁵³ Sands, 50-54.

²⁵⁴ Cervero and Bernick, 53.

²⁵⁵ California High-Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System - Volume 1: Report*, August 2005, 6A-15, Figure 6.3-3a, and 6B-1 – 6B-4, <http://www.cahighspeedrail.ca.gov/library.asp?p=7226> (accessed January 10, 2010).

²⁵⁶ California High Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *California High-Speed Train Project: Fresno to Bakersfield Section Preliminary Alternatives Analysis Report*, June 2010, 3-7 – 3-10, http://www.cahighspeedrail.ca.gov/images/chsr/20100623191810_FB%20Prelim%20AA%20Rpt%206%202%202010.pdf (accessed on August 22, 2010).

the extreme expense of tunneling and providing a subway station.²⁵⁷ It is also unlikely that at-grade options for the UPRR ROW alternatives will be selected due to the impacts to the street grid.

As previously mentioned in Chapter 1, the Authority is currently developing a draft EIR/EIS for the Fresno to Bakersfield section, which will determine the preferred station location for Fresno. It is due for release in January 2011, with the final version anticipated for July 2011.

Several other recent studies and plans that apply to the entire SJV have recently been completed that pertain to HSR, either directly or indirectly. The 2008 University of California, Merced study, *Economic Impact of the California High-Speed Rail in the Sacramento/Central Valley Area*, discusses the economic benefits the HSR project will bring to the Central Valley.²⁵⁸ According to the study, increased accessibility and lower transportation costs due to HSR will lead to modest increases in population for Fresno County over population projections that assume no HSR. The study also projects that HSR will produce significantly more employment in the entire SJV in the areas of service, transportation, communications, finance, insurance, and real estate. The data from this study reinforce the overall literature from around the world referenced in Chapter 2.

The 2009 *San Joaquin Valley Express Transit Study*, commissioned by the Merced County Association of Governments, actually applies to the entire SJV.²⁵⁹ The study recommends prioritizing commuter vanpool services from Madera and Tulare Counties to the City of Fresno along with increased park-n-ride facilities. Vanpools may be useful in providing access to HSR stations and should be considered, given the low-density nature of much of SJV. However, the study does not actually discuss the relationship of rail and vanpools to HSR, missing an opportunity to thoroughly examine potential regional transportation connections. Furthermore, it should be noted that the study proposes no new rail services to serve Fresno (or Bakersfield).

A well-coordinated, eight-county effort to create a blueprint for growth was undertaken in the SJV, and is summarized in the 2010 *San Joaquin Valley Blueprint Planning Process Summary Report*.²⁶⁰ Each county arrived at a preferred growth scenario for residential growth in terms of dwelling units (DU) per gross acre (GA). Taken together, the SJV-wide preferred growth scenarios average 6.8 DU/GA compared to the current trend of 4.3 DU/GA. Of the eight counties, Fresno County is planning for densities at 8.0 DU/GA, while Kern County is planning for 6.0 DU/GA. More specific to Fresno, the report notes that a new business center is planned for western Fresno County. While the residential densities are much higher than current trends in Fresno County, placing major employment centers away from the downtown could be extremely detrimental to creating a vibrant business center near the HSR station in downtown Fresno.

²⁵⁷ Dugan interview.

²⁵⁸ Kantor, 13-19.

²⁵⁹ Merced County Council of Governments, *San Joaquin Valley Express Transit Study*, May 2009, 8-6 – 8-8, <http://www.mcagov.org/publications/2009/SJVETSfinal.pdf> (accessed August 26, 2010).

²⁶⁰ Mintier Harnish et al., *San Joaquin Valley Blueprint Planning Process Summary Report*, September 2010, 34-40, http://www.valleyblueprint.org/files/SJVBR_Summary_Final_2010-09-22.pdf (accessed on October 22, 2010).

As part of the Vision California effort commissioned by the Authority, a report released in 2010 and titled *Vision California/Charting our Future: Statewide Scenarios Report*, documents modeling tools developed in conjunction with statewide alternative growth scenarios.²⁶¹ The scenarios include the following: 1) Business as Usual (primarily existing development patterns); 2) Mixed Growth (a mix of existing development patterns and denser development); 3) Growing Smart (a significant increase in dense development); and 4) Green Future (similar to the Growing Smart scenario in terms of land use but more green in other areas). In this report, each scenario is analyzed in terms of land consumption, greenhouse gas emissions, and other factors. The tools and data being developed by the Vision California effort will be very useful in helping mid-sized cities such as Fresno and Bakersfield to understand the likely outcomes of land use and transportation decisions in terms of land consumption and greenhouse emissions.

6.1.2 Fresno-Based Plans and Studies

Seven existing plans and studies relevant to planning for TOD in downtown Fresno are discussed below, including the 1989 *Central Area Community Plan*, the 1996 *Fulton/Lowell Specific Plan*, the *2025 Fresno General Plan*, the *2011 Regional Transportation Plan: Long-Range Transportation Vision for the Fresno County Region for the Years 2010 to 2035*, the 2008 *Bus Rapid Transit Master Plan*, the 2010 *Draft Fresno Freight Realignment Study: Administrative Draft Summary Report*, and the 2010 *Transit-Oriented Development (TOD) Design Proposals for Fresno*.

The general plan, community plans, and specific plans are the long-range planning instruments currently utilized in Fresno. The 1989 *Central Area Community Plan (CCP)* covers the downtown area, east of SR 99.²⁶² In an effort to improve the economic conditions of the downtown area, the *CCP* proposes 14 mixed-use activity centers, where land use would be intensified. It also introduces two types of commercial land-use designations, which would allow for a high level of mixed-use. The *CCP* also calls for the creation of historic districts where historically significant structures are clustered.²⁶³ Furthermore, based on the conclusion that the Fulton Mall is a commercial failure, the *CCP* advocates a shift from providing general goods to focusing on specialty goods targeted to office workers, tourists, and conventioners, all of which support HSR according to the literature. The *CCP* also calls for improvement in the residential environment and to halt its decline in the central area.²⁶⁴ In terms of transportation, the *CCP* proposes more priority on pedestrian and mini-shuttle bus service to connect activity centers. The *CCP* even proposes to delete the arterial designation of Ventura Street and to conduct a re-evaluation of the one-way street circulation system downtown.²⁶⁵ The *CCP* is significant because

²⁶¹ California High Speed Rail Authority and Calthorpe Associates, *Vision California/Charting our Future: Statewide Scenarios Report*, May 2010, <http://www.visioncalifornia.org/Vision%20California%20-%20Charting%20Our%20Future%20-%20Report.pdf> (accessed on 9/21/10).

²⁶² City of Fresno, Housing and Community Development Department, Redevelopment Division, and Central Area Planning Task Force. *Central Area Community Plan*, July 1989, 11-14, <http://www.fresno.gov/NR/rdonlyres/2F2F88F8-2FD8-4DC4-9343-0036C792CBC3/0/CentralAreaCommunityPlan1989.pdf> (accessed November 15, 2010).

²⁶³ *Ibid.*, 43.

²⁶⁴ *Ibid.*, 19.

²⁶⁵ *Ibid.*, 19 and 31-35.

it created a conceptual framework for a fundamental change in the planning approach to the downtown area, and provided planning principles that are generally supportive of effective TOD. It appears this foundation has been incorporated to some degree in the existing general plan and many concepts are likely to influence the general plan update currently underway.

As a follow-up to the *CCP*, the 1996 *Fulton/Lowell Specific Plan (FLSP)* focuses on the northern portion of downtown and the neighborhood north of Divisadero Street.²⁶⁶ The northern downtown area (immediately south of Divisadero Street) is the most relevant to TOD related to HSR. According to the *FLSP*, this area of downtown has significant cultural and historic resources including the anchors of Warnors Center for the Performing Arts and the Fresno Metropolitan Museum (now closed). The *FLSP* identifies a list of historical resources in this area and encourages additional development that will enhance these resources, such as entertainment and cultural venues. The *FLSP* envisions new development to take place under the purview of the Commercial/Mixed Use Level 2 Land Use Designation. The discussion in the *FLSP* about strengthening existing historic and cultural resources should be revisited in light of the decline of museums in the area. A strong effort in this area has the potential to strengthen Fresno's tourism industry related to HSR travel.

The *2025 Fresno General Plan (2025 FGP)* is the current general plan of the City of Fresno. Policies contained within the *2025 FGP* support TOD by encouraging infill development, revitalization of the downtown core, and the creation of dense, mixed-use activity centers and corridors.²⁶⁷ Specifically, the majority of downtown and Chinatown are designated with the Commercial Mixed Use Level 2, which generally allows for higher densities.²⁶⁸ There are still areas designated with Light Industrial, especially immediately north of Chinatown, and to a lesser degree, the southern portion of the downtown. It may be worth reexamining parcels still designated with Light Industrial, as this is likely not the highest and best use for land near a HSR station. While some of the large warehouse sites north of Chinatown may be difficult to convert, parcels closer to Fresno Street should be considered for conversion to mixed-use development. The area west of SR 99 is generally characterized by residential land-use designations, with the exception of the commercial-related designations along Fresno Street. The many vacant and underutilized parcels in this area present an excellent opportunity to intensify land use in this area.

The *2011 Regional Transportation Plan: Long-Range Transportation Vision for the Fresno County Region for the years 2010 to 2035 (2011 Fresno RTP)*, released in 2010, is an important document in terms of planning transportation connections to the HSR station site, especially

²⁶⁶ City of Fresno, *Fulton/Lowell Specific Plan Citizen's Committee and Development Department Planning Division, Fulton/Lowell Specific Plan*, January 23, 1996, 2 and 12, http://www.fresno.gov/NR/rdonlyres/E16BCD91-5F4A-4B58-B5AD-F8C558DA332D/0/fulton_lowell.pdf (accessed on August 29, 2010).

²⁶⁷ City of Fresno-Planning and Development Department, *2025 Fresno General Plan*, February 2002, 31-45, <http://www.fresno.gov/Government/DepartmentDirectory/PlanningandDevelopment/Planning/2025FresnoGeneralPlan.htm> (accessed on January 12, 2010).

²⁶⁸ City of Fresno, "2025 Fresno General Plan Land Use and Circulation Map," <http://www.fresno.gov/NR/rdonlyres/2404A782-21F8-496D-AC09-6C3E23BE7F98/0/GeneralPlanMap2025bigJune2009.pdf> (accessed on January 12, 2010).

since the document is so recent. The *2011 Fresno RTP* contains several rail-related policies.²⁶⁹ These policies include: 1) promoting the growth of passenger and freight rail; 2) considering the relocation of the BNSF passenger and freight rail operations to the UPRR line or the relocation of both to a new alignment west of Fresno; 3) giving high priority to grade-separation projects and the closing of minor grade crossings; 4) the endorsement of improvements to Amtrak's San Joaquin line such as increased frequency, improved stations, and a direct train to Los Angeles; and 5) supporting the planning and construction of HSR in SJV. However, the document does not identify any funding for rail-related projects, demonstrating a lack of commitment to providing rail-related public transportation improvements. Similarly, while the plan proposes a citywide bus rapid transit (BRT) system, few funds are identified, aside from a small amount for a BRT starter line (described in more detail below). In addition to BRT and rail, there is some commitment in the *2011 Fresno RTP* to improving the basic bus system by increasing frequencies along high-demand routes and maintaining the free downtown circulator.²⁷⁰

In total, the policies enumerated in the *2011 Fresno RTP* indicate some interest in improving public transportation and planning for a future with HSR. However, the absence of identified funding sources demonstrates an almost total lack of commitment to public transportation in favor of massive funding for various roadway expansion projects.²⁷¹ Even in the list of long-term "unconstrained projects" (i.e., where no funding sources are identified) only road projects are listed. This bodes poorly for tying the region together with efficient multimodal transportation networks. The level of commitment to public transportation (i.e., funding) needs to be greatly improved in the next regional transportation plan. According to John Dugan, the City of Fresno's Development and Resource Management Director, state legislation related to global warming and land use will likely force officials to give public transportation a much higher priority in the next regional transportation plan in order to meet the requirement of said legislation.²⁷² This is good news for connectivity to HSR, if such legislation is maintained and enforced properly.

Despite the lack of funding identified for public transportation in the *2011 Fresno RTP*, BRT is being pursued in Fresno. In 2008, the *Bus Rapid Transit Master Plan*, prepared for the Fresno Council of Governments, discusses a number of potential corridors for the implementation of BRT lines.²⁷³ The Ventura Avenue/Kings Canyon Road corridor is prioritized in the document for initial implementation of BRT.

²⁶⁹ Council of Fresno County Governments, *2011 Regional Transportation Plan: Long-Range Transportation for the Fresno County Region for the Years 2010 to 2035*, July 2010, 3-11, <http://www.fresnocog.org/document.php?pid=272> (accessed on August 28, 2010).

²⁷⁰ *Ibid.*, 6-26 – 6-28.

²⁷¹ *Ibid.*, D-1.

²⁷² Dugan interview.

²⁷³ Council of Fresno County Governments, *Bus Rapid Transit Master Plan*, June 2008, 38-42, <http://www.fresno.gov/NR/rdonlyres/46E037A5-7C80-4A5A-935D-DCE67B77A230/0/FresnoBRTMasterPlan20080617.pdf> (accessed October 22, 2010).

Building on the foundation of the *Bus Rapid Transit Master Plan*, FAX recently submitted an application to the Federal Transit Administration for funds for a starter BRT line.²⁷⁴ This starter line, defined as a 13.8 mile route, is planned to run north-south along the North Blackstone Avenue corridor, along M and P Streets in downtown, and eastward from downtown along the Ventura Avenue/Kings Canyon Road corridor. The project is planned to include 26 stations, improved bus shelters, real-time bus information, and exclusive bus lanes along approximately 20 percent of the corridor. The application is requesting \$38 million in Federal 5309 New Starts Funds and identifies close to \$10 million in local matching funds for the \$48 million project. Service is planned to begin in 2013.

Another transportation-related document is the 2010 *Draft Fresno Freight Realignment Study: Administrative Draft Summary Report*.²⁷⁵ The purpose of this study is to examine ways to reduce the impact of the UPRR and BNSF freight rail lines that run through downtown Fresno. It identifies several alternative strategies to mitigate impacts to downtown. These alternatives include moving one or both of the freight lines to a bypass located east or west of downtown. Another alternative would move the UPRR corridor outside of downtown and relocate the BNSF corridor along the current UPRR ROW. Though this planning process has been suspended, relocating freight rail outside of downtown, especially the UPRR corridor, may be desirable when HSR is established. Having the UPRR ROW freed for either TOD or for running Amtrak services (so as to provide a direct transfer between Amtrak and HSR), or a combination of both, has the potential to greatly increase the success of the HSR station and to help further revitalize downtown Fresno.

Finally, the 2010 study by the Global Metropolitan Studies Program at University of California, Berkeley, titled *Transit-Oriented Development (TOD) Design Proposals for Fresno*, is a good source of information on the existing conditions of downtown, including the identification of existing land uses, parking lots, potential infill sites, buildings of merit, land use densities, and transit services.²⁷⁶ Furthermore, the study recommends various design strategies for TOD around the HSR station and in downtown that focus on a mix of land uses that include retail, office space, and various types of housing. The study also recommends redesigning streets so they become multimodal in character. The importance of BRT is also emphasized. The suggestions in this study are generally consistent with the research discussed in this document in terms of the mix of land uses and transportation, though detail on the nuances of land use and how it connects to economic development are lacking. Instead, this study focuses more on the urban design of TOD rather than the detailed economic and land use questions covered in this research

²⁷⁴ Fresno Area Express, "Blackstone/Kings Canyon Bus Rapid Transit: FY 2012 Very Small Starts Submittal Request to Enter Project Development," September 2010, Obtained via e-mail from John Downs, Planning Division Manager, Fresno Area Express on November 8, 2010, 2, and 4-6, and the worksheet titled "Funding Sources by Category."

²⁷⁵ Council of Fresno Governments, *Draft Fresno Freight Realignment Study: Administrative Draft Summary Report*, January 2010, <http://fresnocog.org/files/Documents/Fresno%20Freight%20Realignment%202010%2001%2012.pdf> (accessed on August 21 2010).

²⁷⁶ Elizabeth Deakin et al., *Transit-Oriented Development (TOD) Design Proposals for Fresno: Final Report*, June 2010, Berkeley, CA: Global Metropolitan Studies Program, http://stage.cahighspeedrail.ca.gov/CHSRTemplate_STDwoBanner.aspx?pageid=8895&ekfxmen_noscript=1&ekfxmenseel=eeb11f839_11_14 (accessed on October 25, 2010).

report. Nevertheless, in terms of the finer details of TOD and urban design, this study is an excellent reference.

6.2 CURRENT PLANNING EFFORTS

The City of Fresno has recently authorized approximately \$5 million for planning work that will result in a new zoning ordinance, an updated general plan, and a new development/subdivision ordinance.²⁷⁷ The City of Fresno is hoping to complete all this work within the next 11 months (from December 2010). The main thrust of this planning work is to accommodate a doubling of the population from 500,000 to 1,000,000 while only urbanizing 15% more land. The goal is to place approximately 300,000 new residents along with 150,000 jobs in numerous high-density, mixed-use centers and corridors (see Figure 24).

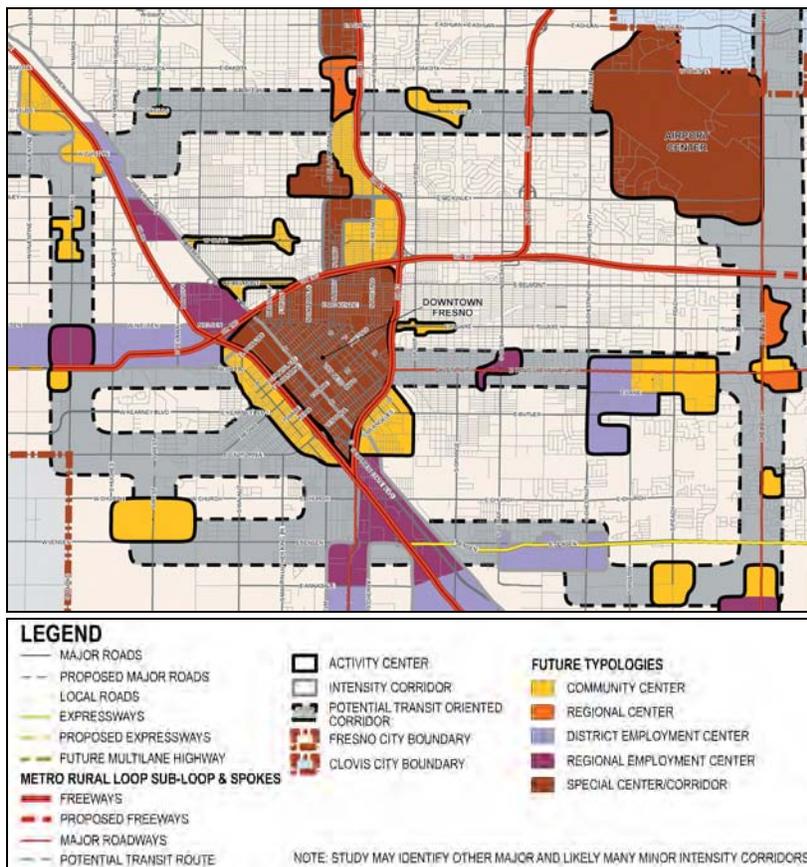


Figure 24. Map of proposed activity centers and transit-oriented corridors in the vicinity of downtown Fresno.

Source: City of Fresno, “2050 Activity Center and Transit Oriented Corridor Typologies Key Map,” <http://www.fresno.gov/NR/rdonlyres/78504CAC-EEC2-4C25-825D-DDAF24DC89C4/13535/ActivityCenterMap3509.pdf> (accessed November 5, 2010).

²⁷⁷ Dugan interview.

In addition to these citywide plans, the City is also in the process of developing the *Fulton Corridor Specific Plan (FCSP)*, which covers the downtown core, and the *Downtown Neighborhoods Community Plan (DNCP)*, which applies to downtown area neighborhoods (see Figure 25).²⁷⁸ According to the project website, “The plans will incorporate extensive outreach and focus on revitalization, aesthetics, infrastructure, incorporation of a high-speed rail station, and attraction and expansion of businesses.”

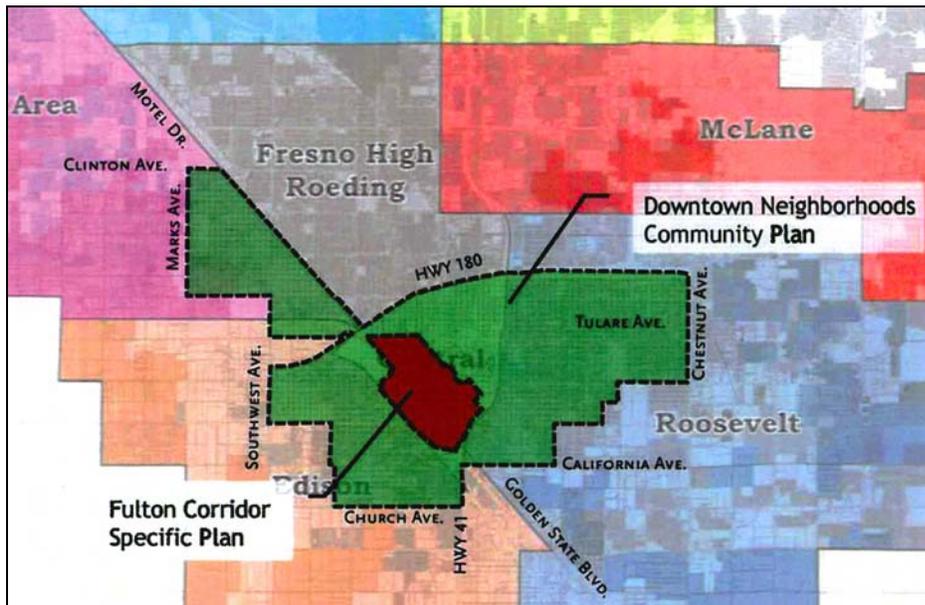


Figure 25. Project areas of the *Fulton Corridor Specific Plan* and the *Downtown Neighborhoods Community Plan*.

Source: City of Fresno, “Project Area” (handout).

The *FCSP* will include a vision for a redesigned Fulton Mall.²⁷⁹ Additionally, the *FCSP* will include a new form-based code for the downtown area. Most importantly (to this research), the *FCSP* will plan for the integration of a HSR station into the downtown. Having the HSR station studied as part of a specific plan is very promising. The *FCSP* is scheduled for completion and adoption in June 2012.

The *DNCP* will focus on improving both the public and private realms in downtown area neighborhoods that support the objective of community members.²⁸⁰ The *DNCP* will also contain plans for a form-based code that is structured to be flexible to accommodate the changing needs and circumstances of the neighborhoods.

²⁷⁸ City of Fresno, “Project Information – Overview,” <http://fresnodowntownplans.com/project/overview> (accessed on October 26, 2010).

²⁷⁹ City of Fresno, “Project Information – Fulton Corridor Specific Plan,” <http://fresnodowntownplans.com/project/details/fcsp> (accessed on August 30, 2010).

²⁸⁰ City of Fresno, “Project Information – Downtown Neighborhoods Community Plan,” <http://fresnodowntownplans.com/project/details/dncp> (accessed on August 30, 2010).

One possible constraint to finishing all these planning efforts is a lack of funding for the required environmental work.²⁸¹ The City of Fresno has procured approximately a third of the funds necessary to complete this work. Fresno is actively pursuing grants to fill the funding shortfall. This funding shortfall illustrates the funding challenges many cities face in achieving good long-range planning for TOD.

In addition to the planning efforts described above, there are portions of nine redevelopment areas that cover the entire FSA, all of which are managed by the Redevelopment Agency of the City of Fresno (FRDA). These include the Central Business District, Chinatown Expanded, Convention Center, Fulton, Mariposa, Southwest Fresno G.N.R.A., West Fresno I, West Fresno II, and South Van Ness Industrial Revitalization.²⁸² In recent years the focus of the FRDA has been on housing in the FSA, after a long period of focusing on bringing public and private office, medical, and retail development to the downtown area.²⁸³ Currently, the FRDA is reconsidering the types of land uses for downtown redevelopment areas due to the planning of the HSR station. Destination retail is one land use that the FRDA agency is considering as a high priority. In the meantime, the FRDA is currently examining any development proposals that arise with HSR in mind. Additionally, there are still some housing projects in the works, including the two previously mentioned in the Chinatown area.

6.3 GENERAL CONCLUSIONS

Fresno has an extensive set of existing planning documents, most of which support TOD generally. However, they do not focus on HSR. Furthermore, according to city officials and other stakeholders, current plans lack tools to support good TOD due to the uncertainty of the development process in Fresno.²⁸⁴ On the other hand, the new planning efforts currently underway are designed to strengthen TOD concepts, to link TOD planning directly to the HSR station site, and to provide a systematic and predictable approach to the development process.

The focus on high-density, mixed-use centers and corridors, along with plans for an extensive BRT system is supportive of the HSR. Furthermore, the *FCSP* and *DNCP* are extremely encouraging as they focus specifically on the areas surrounding the planned HSR station. The *2011 Fresno RTP* is the weak link in the planning situation due to a lack of commitment to funding public transportation. The primary challenge will be to ensure that additional funding for public transportation is included in the next regional transportation plan.

Fresno has missed a tremendous opportunity to not only remove a significant nuisance caused by freight railroad operations through downtown, but has also diminished the opportunity to benefit from the HSR project by their inability to free valuable downtown land along the UPRR ROW for development and a possible new route for Amtrak so it would be able to connect

²⁸¹ Dugan interview.

²⁸² Redevelopment Agency of the City of Fresno, "Merger I Redevelopment Areas," <http://www.fresnorda.com/pdf/merger1.pdf> (accessed on November 7, 2010); Redevelopment Agency of the City of Fresno, "Merger II Redevelopment Areas," <http://www.fresnorda.com/pdf/merger2.pdf> (accessed on November 7, 2010).

²⁸³ Perez interview.

²⁸⁴ Dugan interview; Minami interview.

directly to the HSR station. Though funding may have been difficult to obtain, the absence of a sustained effort on the part of city officials and politicians to relocate freight rail outside of downtown will likely result in less economic growth as a result of the HSR project, unless the effort to create a freight rail bypass is renewed.

Despite the challenges, overall, the City of Fresno is showing the type of public-sector leadership in the area of planning that will give them a good opportunity to leverage the HSR station to maximize economic development.

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Chapter 7: Recommendations for Fresno

Recommendations specific to Fresno are discussed in terms of land use, transportation, urban design, and public-sector involvement. Figure 26 illustrates many of the recommendations contained in this chapter.

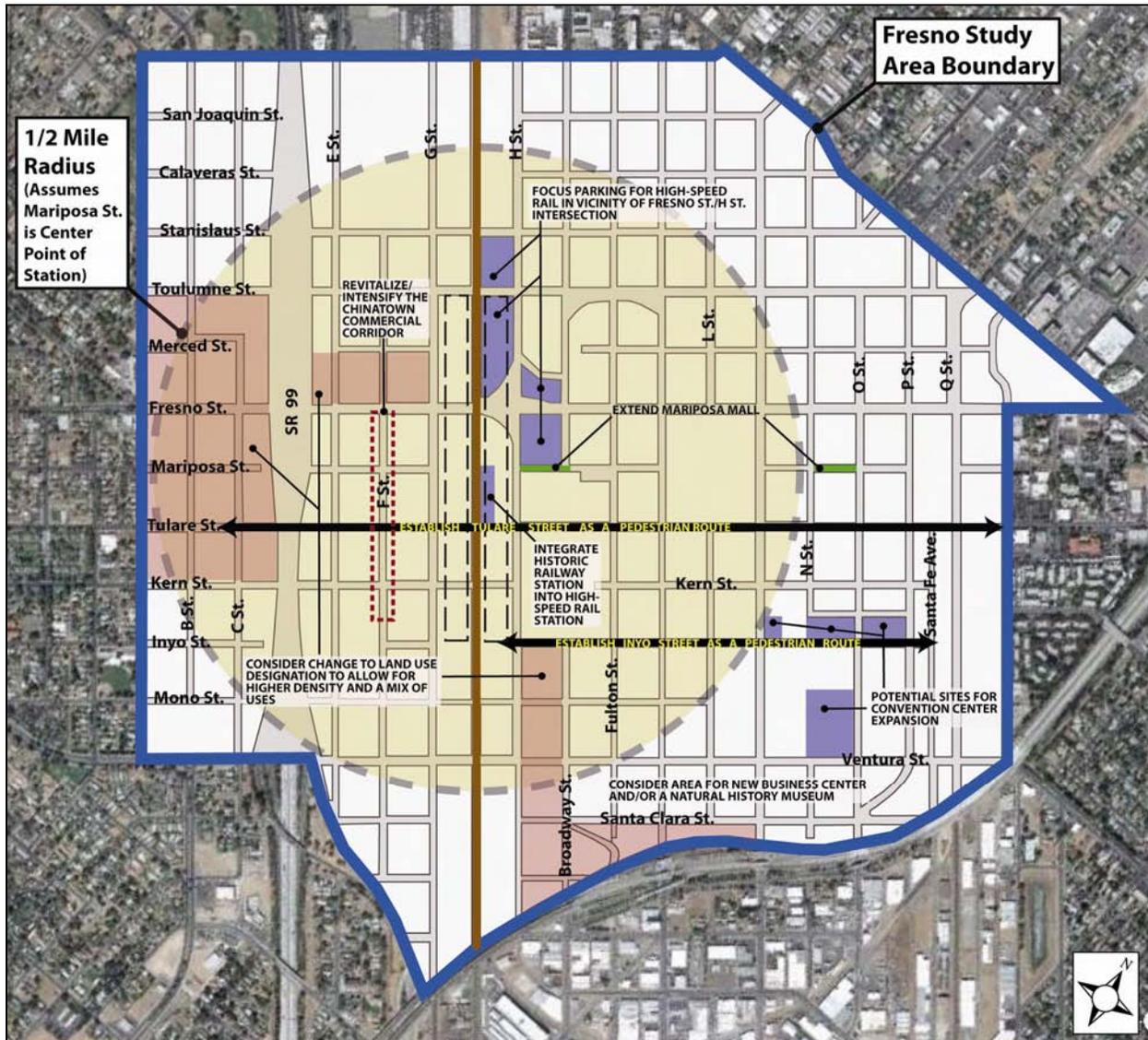


Figure 26. Recommendations Map for the Fresno Study Area.

Source: Image created by author (2010). Base aerial image courtesy of Google Earth (2010).

7.1 LAND USE

Fresno has tremendous opportunity for economic development in downtown with the arrival HSR. Below are several land-use recommendations that seek to promote business, tourism, and the efficient use of land to allow for maximum economic development.

In the new general plan, change industrial land-use designations to allow for higher-density development and a mix of land uses immediately north of Fresno Street in Chinatown and in the southern portion of downtown.

While many of the large warehouses north of Chinatown are likely to continue as industrial uses, the area immediately north of Fresno Street has potential for high-density, mixed-use development. Similarly, the southern portion of downtown, especially along Broadway Street and south of Santa Clara Street, should be changed to accommodate a high-density of mixed land uses that support HSR.

In the new general plan, change residential and community commercial uses in the blocks immediately west of SR 99 between Toulumne and Kern Streets to allow for higher-density development and a mix of land uses.

The area immediately west of SR 99, between Toulumne and Kern Streets is characterized by numerous large vacant lots, some single-family homes, and a shopping center. This area is still within walking distance of the future HSR station. Consider increasing the residential densities on vacant lots while allowing for small-scale commercial uses such as corner stores. Furthermore, the existing shopping center on the northeast corner of Fresno and B Streets should be designated to allow for high-density, mixed-use development.

Consider creating a modern business center consisting of offices, hotels, corporate housing, and supportive retail along Ventura and Santa Clara Streets.

Land uses that support both HSR business travelers and the convention center include office space of various types, hotels, and corporate housing. Currently, there is a low intensity of land use around Ventura and Santa Clara Streets, between the HSR station site and the convention/entertainment center area. This area should be considered for intensive development as a business center.

Reserve space now for future expansion of the Fresno Convention Center.

The arrival of HSR and the dramatic population increase anticipated for Fresno in coming decades will likely increase Fresno's attractiveness as a center for conferences. There is a strong probability that the Fresno Convention Center will need to expand significantly. Therefore, land in the immediate vicinity of the convention center should be reserved specifically for such expansion. Consider reserving land currently occupied by surface parking lots for expansion, including lots located along the north side of Inyo Street (immediately east of the Fresno Convention Center) and the lot located immediately south of the multi-level parking garage (which is located at the southwest corner of Inyo and O Streets). If development were permitted for other uses prior to the need for convention center expansion, the potential for economic development coming from HSR access might be constrained.

Develop strategies to revitalize the neighborhood business district in Chinatown.

The Chinatown area still has a neighborhood business district, primarily along F Street and to a lesser extent along Tulare and Kern Streets. This area has the potential to be expanded and revitalized as part of TOD associated with HSR. Streetscape improvements have already been made along these streets. Consider focusing more housing here to produce a mixed-use, neighborhood-like atmosphere.

Focus HSR parking structures on land surrounding the Fresno Street/H Street intersection.

As discussed in the literature review, there is a tension between the node and place functions of HSR stations. Parking requirements for HSR can have a significant impact on the places around HSR stations. Nevertheless, a significant level of parking will be necessary to serve the large commute-shed of HSR, especially since land use patterns are generally low-density and rapid transit will likely be unable to cover large geographic areas or serve many HSR users from the Fresno region. Therefore, to prevent park-n-ride users from flooding downtown streets, it will be necessary to ensure that these drivers are able to access HSR parking garages without being forced to drive extensively along downtown streets. Therefore, it is recommended that HSR parking structures be located on parcels surrounding the Fresno Street/H Street intersection. This location has the potential to confine park-n-ride traffic to a very small area of downtown, greatly reducing the impact. Furthermore, the land surrounding the Fresno Street/H Street intersection is already occupied by surface parking lots. Also, the grade separation of Fresno Street does not create a nice environment for other types of development, though mixed-use parking structures should be considered to use land more efficiently.

Establish a major visitors' center and tourist gateway attraction such as major natural history museum in downtown Fresno near the HSR station.

A key to promoting Fresno is to establish it as the primary gateway city to the Sierra Nevada mountain range and the national parks. As a gateway city, Fresno should look at what types of activities and attractions can introduce tourists to all the myriad activities available in the Sierra Nevada range. An extensive visitors' center and a major natural history museum focused of the Sierra Nevada range and the SJV is one possibility that could serve this purpose. Other fun family activities should also be considered, potentially in some sort of complex (though avoid an overly-commercialized version). The goal should be to encourage visitors and families to stay one or two nights in Fresno before leaving for the Sierras. The number of hotels would also need to be increased to accommodate this demand. Consider placing these attractions in the southern portion of downtown in the vicinity of the Broadway Street/Ventura Street intersection.

Establish a set of major museums downtown.

In addition to the natural history museum recommended above, a history museum of the SJV should be considered. Additionally, Fresno, due to its location, could have a significant art museum that would be seen as the main art museum for the entire SJV. Consider placing museums at various locations around downtown to encourage people to circulate through the area. Also consider integrating museums into Fulton Mall to enliven that pedestrian space.

7.2 TRANSPORTATION

The recommendations for transportation reflect Fresno's need to develop, almost from scratch, a rapid transit form of public transportation, as well as regional rail and bus services. Additionally, these recommendations seek to increase the already high-quality pedestrian circulation system to provide optimal access to and from the planned HSR station.

Aggressively pursue an alignment for the HSR tracks and station that is east of the UPRR ROW and a station position that has a center point at Mariposa Street.

Connecting the HSR station to the downtown will be strongly facilitated by ensuring that the location of the HSR station is on the east side of the UPRR ROW. A good connection between downtown and the HSR station is essential for the creation of successful TOD. Given the UPRR ROW is over 100 feet wide, the HSR station will either feel a part of downtown or quite separate, depending upon its location. An error in placement of the station could have significant impact on the potential for future economic development in Fresno related to the HSR station.

The positioning of the station in the north-south configuration is also important. The station should be positioned in a way that allows for the most efficient walking patterns to the downtown. If the station is located too far north or too far south, then access to the many areas of downtown will become difficult via walking. Therefore, based on the characteristics of the downtown areas to the east, it is recommended that Mariposa Street be considered the center point of the station structure.

Invest in a high-quality, citywide BRT system that connects to the HSR station.

While light-rail may make sense at some point in Fresno's future, an extensive BRT system should be pursued that is relatively quick to implement so that its opening will coincide with the commencement of HSR service. Priority should be given to connecting the California State University, Fresno campus to the HSR station. In a time of limited funding, it may be necessary to shift funding priorities away from the almost exclusive focus on expanding roads and highways to public transportation in order to provide more balance. A paradigm shift is needed in this area to provide good public transportation connections to the HSR station.

Invest in the development of a regional rail system that connects directly to the HSR station.

While a new BRT system would serve the centers and corridors currently being conceptualized by the City of Fresno, a new commuter rail system should be developed that would connect the HSR station to the outskirts of Fresno and suburbs such as Clovis. As studies have shown, it is critical to tie together the smaller cities and regions that surround an HSR station with regional rail services. The most difficult part of accomplishing this task will be to get regional trains (including Amtrak's San Joaquin line) from the BNSF ROW to the HSR station, which parallels the UPRR ROW. Though there will likely be resistance from UPRR, the purchase of some of the vacant UPRR ROW downtown for this purpose should be considered. One can envision a two-track regional rail/Amtrak surface station that connects to the HSR station located immediately to the east. This effort will require tremendous leadership from local officials and politicians.

Establish a robust public transportation system between the planned HSR station and the Yosemite, Kings Canyon and Sequoia National Parks.

With the arrival of HSR, Fresno needs to aggressively leverage itself as a gateway to the Sierra Nevada mountain range and the Yosemite, Kings Canyon, and Sequoia National Parks. An efficient and extensive public transportation system between these attractions and the planned HSR station (and other key locations in downtown) is critical in establishing Fresno as gateway city.

Extend the pedestrian-only treatment of Mariposa Street from Broadway Street to H Street.

Based on the previous recommendation that Mariposa Street become the center point for the HSR station, ensuring an excellent pedestrian connection and entrance point at this location is critical. Given the fact that Mariposa Mall already extends one-block west of Fulton Mall, extending this pedestrian-only space one more block would allow the street to become the primary pedestrian connection between Fulton Mall and the HSR station. The block immediately east of H Street, currently open to cars, is not essential for automobile access.

Extend the pedestrian-only treatment of Mariposa Street from N Street to O Street.

Mariposa Mall will be complete all the way from the HSR station to City Hall if this block is closed to cars in conjunction with the proposed extension of Mariposa Mall described above. Furthermore, this block is adjacent to Eaton Plaza, which is currently being redesigned as a gathering place for community life.²⁸⁵ Given that the pedestrian-only Mariposa Mall is already present on the blocks immediately to the east and west of this block, closure to cars would not likely impact automobile access significantly.

Preserve the pedestrian-only configuration of Fulton Mall.

As part of the *FCSP* planning process, consideration is being given to allowing cars along Fulton Mall.²⁸⁶ While this approach may have some benefits in the short-term, the arrival of HSR and intensive TOD will bring with it a much higher density of people to the area. With this increased density of people, the pedestrian-only nature of Fulton Mall will be an asset. If Fulton Mall is stripped of its pedestrian-only nature now, then it will be difficult to develop other pedestrian-only areas that branch off of it. These pedestrian-only spaces will be critical to providing excellent pedestrian circulation patterns to and from the HSR station.

Redesign Tulare Street as a major pedestrian route to Chinatown to the west and downtown to the east.

While Mariposa Mall will provide excellent connections between a future HSR station and Fulton Mall, Courthouse Park, and Eaton Plaza, the most direct route to connect the station to both the Chinatown area to the west, and Chuckchansi Park, City Hall, and the Amtrak station to the east is Tulare Street. Kern Street was previously the main east-west route, but Chuckchansi Park severed that access. Therefore, Tulare Street takes on much greater importance.

Redesign Inyo Street as a major pedestrian route.

Inyo Street will also likely become a primary route between the southern portion of the HSR station and the Fresno Convention Center and entertainment venues such as William Saroyan Theatre, Ernest E. Valdez Hall, and Selland Arena. Kern Street, the main entrance to Fresno Convention Center is cut off from the HSR station site. Therefore, Inyo Street should be designated a primary pedestrian route to the convention center/entertainment complex. Also,

²⁸⁵ Downtown Association of Fresno, "Eaton Plaza," <http://www.downtownfresno.org/eaton-plaza.html> (accessed November 30, 2010).

²⁸⁶ Moule & Polyzoides Architects and Urbanists, "Fresno Fulton Corridor Specific Plan" presentation, October 19, 2010, http://fresnodowntownplans.com/media/files/101019_FCSPCAC_reduced.pdf (accessed December 1, 2010).

consider adding a second entrance to Fresno Convention Center off of Inyo Street as part of any expansion effort.

7.3 URBAN DESIGN

The urban design of the area immediately around the station will determine how well intermodal connections facilitate movement to and from the HSR station. Additionally, the urban design of the station will affect how efficiently space is used. These urban design recommendations do not focus on specific street and building designs, as those are fairly well established for TOD generally.

Design the HSR station to have a vertical configuration.

The extreme height of the planned station platforms provides an opportunity to have connecting transit directly underneath the station. According to the research discussed in Chapter 2, vertical intermodal station designs are much more efficient than horizontal ones. Therefore, space underneath the station should be reserved for numerous buses lines, including future BRT service.

Integrate buildings directly underneath the station platforms and tracks.

The high station platforms and tracks that are planned to run through downtown have the potential to create a negative visual impact. However, this can be mitigated by pursuing strategies to construct buildings directly beneath the tracks and platforms. If designed well, the tracks may not be visible at all. Instead, the tracks and platforms will appear as if they are a part of built form of the new buildings. However, this will require a high level of coordination with the Authority, early in the process.

Ensure that the station is designed in a way that provides Fresno with an architectural landmark.

The opportunity to have a HSR station is also an opportunity to create an architectural landmark that makes downtown Fresno a more memorable place. However, getting a great station design will require a high level of coordination with the Authority early in the process.

Consider integrating the historic former train station building into the HSR station.

The historic former train station building, currently located at the northeast corner of UPRR ROW/Tulare Street intersection, should be integrated into the new HSR train station if feasible. Consider leaving it in place underneath the station platforms and using it as an entrance for people arriving from Mariposa Mall and Tulare Street. The space between the building and H Street could become a plaza in front of the station entrance.

Create a system of signage between the HSR station and the various destinations in the downtown area.

Visitors arriving in Fresno on HSR should be greeted by clear signage and maps to all the various destinations in downtown. Signage should also clearly delineate pedestrian routes and connecting transit services.

7.4 PUBLIC-SECTOR INVOLVEMENT

As documented in Chapter 6, Fresno is currently engaged in planning efforts to lay the groundwork for maximizing the economic benefits of HSR. Below are recommendations that focus on strengthening current planning efforts.

Develop a strong vision for both the station complex and track structures.

Transit planning agencies (in this case, the Authority) often focus primarily on designing transit facilities that are oriented to transit operations, while often neglecting place-making attributes. For example, if the City of Fresno wants to pursue development under the tracks, city leaders and officials will need to push to ensure the design of the tracks will accommodate buildings. The same is true of the station design. Therefore, the City of Fresno should accelerate the development of a detailed vision for the HSR station and track structures that lead to the station. Consider utilizing the *Fulton Corridor Specific Plan* for the creation of such a vision.

Absent a strong vision by the public-sector, the station is likely to be designed as a utilitarian structure rather than as a dramatic landmark. Furthermore, the research shows that efforts to coordinate the design of transit facilities require an ongoing effort until the project is complete.

Develop policies and incentives that encourage business to locate downtown.

More private business is needed to increase the tax base and diversify the economy of the downtown area. To accomplish this, the City of Fresno will need to aggressively pursue policies that encourage businesses to locate in downtown rather than in office parks at the periphery of Fresno or beyond the city limits.

A possible challenge the City of Fresno may face in directing development downtown is competition for new development from Fresno County. According to Gary Lasky, Chair of the Tehipite Chapter of the Sierra Club, “There are lots of forces conspiring to keep things the way they are, including continued development at the periphery of Fresno, but the bad economy provides some opportunity for change.”²⁸⁷ Furthermore, as previously mentioned, Fresno County is planning a large business center in the western area of the County. This plan should be re-assessed, as it could hinder efforts to bring business to downtown Fresno near the planned HSR station.

The City of Fresno will need to focus on both providing services that cater to business and marketing the benefits of locating in a vibrant downtown environment with access to HSR. The success of TOD around the planned HSR station will be highly dependent on how much growth is focused in the downtown area versus more sprawl development on the outskirts of Fresno or in unincorporated county areas.

Develop incentives that encourage large agricultural businesses to locate major offices in downtown Fresno.

The Fresno area has an extensive agriculture industry. However, the headquarters or major offices of agricultural companies are generally not located in Fresno. Rather, many of them are

²⁸⁷ Gary Lasky, Chapter Chair, Sierra Club – Tehipite Chapter, in a personal interview, Fresno, CA, September 9, 2010.

located in other major cities. With the arrival of HSR, it may be more feasible for businesses in this industry to establish their headquarters, or at least major satellite offices, in Fresno. With a revitalized downtown Fresno and rapid access to Los Angeles and the Bay Area, Fresno may become much more attractive to businesses than it is today. The City of Fresno should pursue policies that will further incentivize these businesses to establish a presence in downtown.

Revisit the concept of realigning freight rail to free space for TOD and to possibly allow for a direct HSR/Amtrak transfer.

Though the idea of realigning the freight rail lines in downtown Fresno has been shelved for now, the idea still has the potential to greatly benefit downtown and the HSR project. Alternatives developed in the *Draft Fresno Freight Realignment Study: Administrative Draft Summary Report*, should be revisited in the future, especially ones that would move UPRR out of downtown and onto a bypass corridor. Given the wide ROW that UPRR currently possesses in downtown, there is likely enough space for both TOD and for Amtrak trains, so that a direct HSR/Amtrak transfer could be created.

PART THREE

BAKERSFIELD: STUDY AREA CHARACTERISTICS, PLANNING PROFILE, AND RECOMMENDATIONS

Part Three discusses Bakersfield, first by examining the characteristics of the area around the planned high-speed rail station, as well as the opportunities and constraints therein (Chapter 8). Then, a discussion follows describing the existing planning policies, as well as current planning efforts that the City of Bakersfield is undertaking to prepare for high-speed rail (Chapter 9). Based on the opportunities and constraints of the Bakersfield Study Area and the assessment of planning being pursued, a set of specific recommendations for Bakersfield is provided (Chapter 10).

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Chapter 8: Bakersfield Study Area Characteristics

This chapter examines characteristics of the Bakersfield Study Area (BSA) discovered from site visits and interviews with local officials and stakeholders. First, an overview of geographic characteristics and key features is given, along with a discussion of how they relate to the planned HSR station. Then, opportunities for and constraints to TOD within the BSA are examined.

8.1 BAKERSFIELD STUDY AREA OVERVIEW

The BSA is located in the downtown Bakersfield area, approximately one and one-quarter miles east of SR 99 and three-quarters of a mile north of SR 58 (see Figure 27). The BSA consists of a geographic area that surrounds two sites under serious consideration for the planned HSR station in Bakersfield²⁸⁸ and is bounded by 24th Street/SR 178 to the north, 7th Street to the south, G Street to the west, and King Street to the east (see Figure 28). The BSA is larger than the Fresno Study Area because the main business district, located around the Chester Street/Truxtun Avenue intersection, is approximately three-quarters of a mile west of the planned HSR station sites. Furthermore, key features and cultural assets that are likely to support TOD related to HSR are spread out over a larger geographic area than is the case in Fresno. Conversely, much of Fresno's downtown is within a half-mile radius of their proposed HSR station sites.



Figure 27. Bakersfield Study Area vicinity map.

Source: Image created by author (2010). Base aerial image courtesy of Google Earth (2010).

²⁸⁸ California High-Speed Rail Authority and U.S. Department of Transportation Federal Railroad Administration, *California High Speed Train Project: Fresno to Bakersfield Section Preliminary Alternatives Analysis Report*, June 2010, 4-55 – 4-56, http://www.cahighspeedrail.ca.gov/images/chsr/20100623191810_FB%20Prelim%20AA%20Rpt%206%202%202010.pdf (accessed on August 22, 2010).

Bakersfield Study Area Characteristics

The two alternative HSR station sites currently being studied by the Authority are located in close proximity to one another, slightly southeast of the existing Bakersfield Amtrak Station.²⁸⁹ As currently planned, the first alternative station site, associated with what is referred to by the Authority as the “blue line,” parallels and sits immediately south of the Burlington Northern Santa Fe Railway Company (BNSF) ROW and the Amtrak Station on vacant land. The center point of this station site is slightly east of the center point of the Amtrak Station (which is located at the intersection of the BNSF ROW and S Street). The second alternative station site, associated with what is referred to by the Authority as the “red line,” is aligned in a more southeasterly direction than the first alternative, and is located on several industrial properties. Its center point is located over 500 feet southeast of the center point of the Amtrak Station. Currently, Bakersfield’s City Council has requested that the Authority re-examine the two alternative HSR alignments in the downtown area to reduce impacts presented by both.²⁹⁰

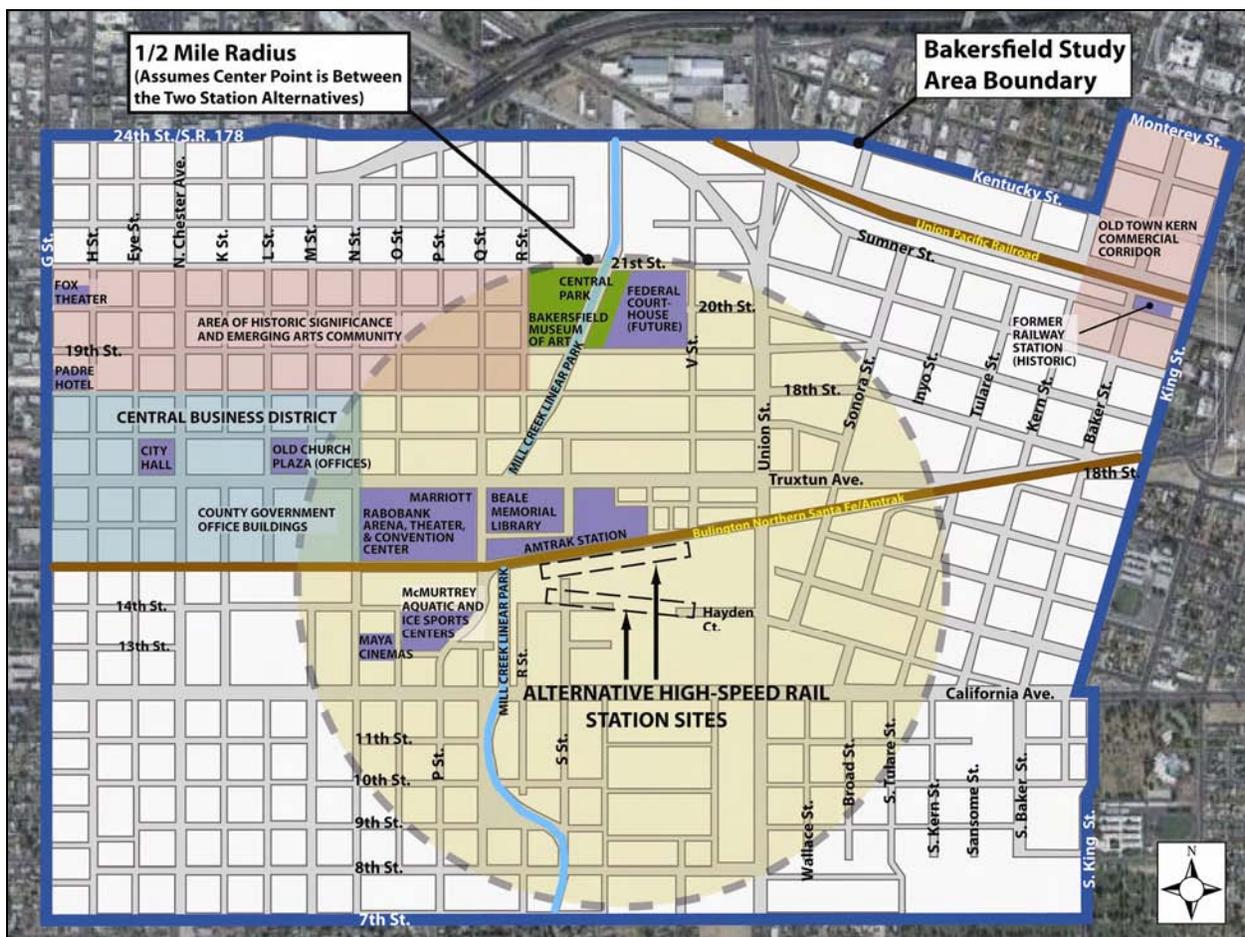


Figure 28. Bakersfield Study Area.

Source: Image created by author (2010). Base aerial image courtesy of Google Earth (2010).

²⁸⁹ Ibid., 4-50 – 4-53.

²⁹⁰ Jim Eggert, Planning Director, Development Services Department – Planning Division, City of Bakersfield, e-mail message to author, December 6, 2010.

The BSA encompasses the central business district of Bakersfield’s downtown, which generally lies west of the planned HSR station sites. Most large office buildings in downtown Bakersfield are located along the south side of Truxtun Avenue, many of which are occupied by various Kern County agencies (see Figure 29). There are very few office buildings of significant size north of Truxtun Avenue. Exceptions include the relatively tall Bank of America building (approximately 10 stories), which is located at the northeast corner of the Chester Avenue/ Truxtun Avenue intersection, and a seven-story structure at the northeast corner of the 17th Street/L Street intersection. Chester Avenue, the primary north-south-running street of the central business district, is lined with a collection of older low- to mid-rise office buildings with commercial uses on the ground floor. The tallest of these buildings reaches six stories.



Figure 29. Office buildings in downtown Bakersfield.

Note: Left image is of the County of Kern Administration building on the south side of Truxtun Avenue. Center image is of the County of Kern Jury Services, also on the south side of Truxtun Avenue. Right image shows an example of the many low-rise office buildings north of Truxtun Avenue (foreground) and the Bank of America building, the tallest office structure in downtown Bakersfield (background).

Source: Author (2010).

The northwestern portion of the BSA is an area of historic significance. The east-west-running one-way couplet – 19th and 20th Streets – is characterized by older, low-rise buildings with street-facing shops (Figure 30). Nineteenth Street has seen streetscape improvements and seems to be the focus of public improvement efforts in the area. Anchoring the historic character of this area are two historic structures along H Street, which are still in use today: the Bakersfield Fox Theater, at the northwest corner of the 20th Street/H Street intersection; and the Padre Hotel, located at the northwest corner of the 18th Street/H Street intersection.



Figure 30. Historic assets in the northwest portion of the Bakersfield Study Area.

Note: Left image views 19th Street looking east. Center image shows the Bakersfield Fox Theater looking north along H Street. Right image is of the Padre Hotel looking south along H Street.

Source: Author (2010).

Bakersfield Study Area Characteristics

Another area of historical significance is the Old Town Kern commercial corridor along Baker Street, located in the northeastern portion of the BSA. The old Southern Pacific Railroad depot building, previously called Sumner station, is located at the northeast corner of the Baker Street/Sumner Street intersection.²⁹¹ The station was located outside of downtown Bakersfield due to a land dispute between the City of Bakersfield and Southern Pacific Railroad. The town of Sumner was built around the station. It was subsequently called Kern City, and eventually was annexed into Bakersfield in 1910.²⁹²

The eastern portion of the BSA, generally east of Union Street, is characterized primarily by industrial land use, and to a lesser extent, by residential land use. A collection of large industrial parcels lies east of the Amtrak Station. Residential land use predominates in the BSA south of California Avenue.

Immediately to the west of the Amtrak Station are the Beale Memorial Library and the Rabobank Arena Theater and Convention Center (RATCC) (see Figure 31). Connected to the RATCC is the Bakersfield Marriott at the Convention Center hotel. The Best Western Hill House motel also lies immediately north of the Beale Memorial Library on Truxtun Avenue.



Figure 31. Convention center area.

Note: Left and center images are views of a plaza and water feature at the entrance to the Rabobank Arena Theater and Convention Center. Right image is of the Bakersfield Marriott at the Convention Center hotel and the Beale Memorial Library.

Source: Author (2010).

Downtown Bakersfield has an emerging entertainment/recreation area on land bounded by 14th Street to the north, California Avenue to the south, N Street to the west, and P Street to the east. The McMurtrey Aquatic Center, the Ice Sports Center, and the Maya Cinemas all reside in this area (see Figure 28 and Figure 32). Slightly east of this area is another recreational facility – Mill Creek Linear Park (MCLP) – which runs north-south approximately one and one-half miles from California Avenue at the south to Golden State Avenue at the north. The MCLP includes two pathways that run along both sides of Mill Creek.

²⁹¹ George Gilbert Lynch, “The Streetcars, Gone But Not Forgotten,” *Bakersfield.com*, February, 2005, <http://people.bakersfield.com/home/ViewPost/51335> (accessed November 9, 2010).

²⁹² City of Bakersfield, “History of Bakersfield,” http://www.bakersfieldcity.us/administration/mayor_council/history.htm (accessed November 9, 2010).



Figure 32. Recently developed entertainment and recreational assets in downtown Bakersfield.

Note: Left image shows Maya Cinemas and McMurtrey Aquatic Center. Center image is a view looking north at pathways that run along both sides of Mill Creek Linear Park. Right image shows a view of the recently refurbished Central Park from 19th Street.

Source: Author (2010).

8.2 OPPORTUNITIES

The Bakersfield Study Area presents opportunities for TOD related to HSR. Opportunities are discussed below in terms of location, land use, historic and cultural resources, and transportation.

8.2.1 Location

Downtown Bakersfield is located approximately 112 miles north of downtown Los Angeles via automobile. The ride on HSR between the two downtowns is planned to take only 54 minutes,²⁹³ making the travel time via HSR very competitive with automobiles. As a result, Bakersfield's downtown may become more attractive to Los Angeles-based businesses looking for less expensive office space while still maintaining a presence in the Los Angeles area. As the literature has documented, companies often look to smaller regional cities on HSR lines to find less expensive rents.

The oil industry, which has extensive field operations in the Bakersfield area, may find downtown Bakersfield attractive for locating offices if HSR can provide fast links to other offices around California. In fact, there is precedent for the presence of oil companies in downtown Bakersfield.²⁹⁴ Chevron and Arco used to have offices in downtown Bakersfield before they relocated outside of downtown.

Those who are self-employed and do not need to commute everyday, and desire more space at affordable prices compared to the Los Angeles area, may find living in downtown Bakersfield near a HSR station an attractive proposition. In fact, dense housing developments, which will

²⁹³ California High-Speed Rail Authority, "Interactive Map," http://www.cahighspeedrail.ca.gov/trip_planner.aspx (accessed November 11, 2010).

²⁹⁴ Jim Eggert, Planning Director, Development Services Department – Planning Division, City of Bakersfield, in a personal interview by author, Bakersfield, CA September 14, 2010; Eggert e-mail message to author, December 6, 2010.

include more than 350 housing units, are currently being developed adjacent to MCLP near the HSR station sites.²⁹⁵

8.2.2 Land Use

Several publicly-owned parcels of land immediately surrounding the planned HSR station sites present tremendous opportunity for TOD (see Figure 33). To the northwest of the HSR station sites, surface parking lots associated with the Beale Memorial Library and the Amtrak station are prime opportunities sites. Immediately southeast of the Amtrak station is a vacant, triangular-shaped parcel of land owned by the City of Bakersfield. These publicly-owned parcels provide an excellent opportunity to begin planning for the HSR station and adjacent TOD in the near-term, as there are less restrictions on planning for redevelopment than would be the case for privately-owned land.



Figure 33. Opportunity sites for transit-oriented development in the immediate vicinity of the Bakersfield high-speed rail station sites.

Source: Image created by author (2010). Base aerial image courtesy of Google Earth (2010).

Immediately north of Beale Memorial Library is the Best Western Hill House motel, which straddles Mill Creek (see Figure 33). This low-density motel, due to its location near the future HSR station, is also a prime TOD opportunity site.

Industrial land in the immediately vicinity of the HSR station sites provides an opportunity for a TOD of significant size. Additionally, low-density industrial land, located immediately east of

²⁹⁵ Donna Kunz, “Look Around: Redevelopment Works,” *The Bakersfield Californian*, November 8, 2010, <http://www.bakersfield.com/opinion/community/x1003410973/DONNA-KUNZ-Look-ar> (accessed on November 10, 2010).

Union Avenue between Truxtun and California Avenues, may also provide good opportunities for TOD. Furthermore, there is opportunity for the redevelopment of industrial land northeast of the Truxtun Avenue/Union Avenue intersection, though the presence of some residential areas may present challenges.

In addition to opportunities for TOD on publicly-owned and low-density industrial land, there is great opportunity to create TOD around Mill Creek Linear Park. Such TOD could help expand the reach of the nascent revitalization already taking place along the MCLP. In addition to the aforementioned housing development along the MCLP (just south of the BNSF ROW), there is a new Federal courthouse currently under construction at the intersection of 19th Street and MCLP. Bob Bell, chairman of the Downtown Business and Property Owner's Association (for Bakersfield), envisions a new legal district evolving around the new courthouse that would draw businesses seeking legal services from the SJV and possibly from the Los Angeles area.²⁹⁶

With the arrival of the new Federal courthouse, the intersection of 19th Street and MCLP is becoming a significant node of activity. In addition to the new courthouse, Central Park and the Bakersfield Museum of Art are located at this intersection. This emerging activity node offers great potential to stimulate additional development along 19th Street toward the historic activity node to the west that includes the Bakersfield Fox Theater and the Padre Hotel. Combined with MCLP, linking these two activity nodes will begin stitching together the currently disconnected assets that downtown possesses.

To the north of Chester Avenue (just outside of the BSA) is a large hospital and medical campus complex, which includes a new oncology center.²⁹⁷ In addition to institutional investments in this medical complex, many doctors are buying small houses surrounding the medical complex and converting them to offices. The presence of this medical complex is leading to other activities in downtown Bakersfield, such as more medical conferences. A thriving medical community could really enhance the prospects for downtown revitalization. Increasing the number of conferences will also support the use of HSR as well.

8.2.3 Historic and Cultural Resources

The aforementioned northwestern portion of downtown, which includes the Bakersfield Fox Theater and the Padre Hotel, has the potential to be further defined as an area of historic and cultural significance. Banners hanging on lamp posts are already identifying the area as an arts district. There is opportunity to enhancing the identity of this area as a historic and cultural center with a focus on the arts, which could be valuable in bolstering tourism related to HSR.

Baker Street in the Old Town Kern area, from approximately 21st Street to the south and Monterey Street to the north, is a historic commercial corridor with potential for revitalization (see Figure 34). This area is also home to the previously mentioned historic former train station

²⁹⁶ Bob Bell, Chairman, Downtown Business and Property Owner's Association, in a personal interview by author, Bakersfield, CA, September 15, 2010.

²⁹⁷ Donna Kunz, Economic Development Director, City of Bakersfield Economic and Community Development Department, in a personal interview by author, Bakersfield, CA, September 15, 2010.

building (now owned by UPRR and no longer used as a station).²⁹⁸ However, integrating Old Town Kern into the downtown will be challenging due to its location, which is well over a half-mile from the HSR station sites. Additionally, frequent freight trains traveling across Baker Street along the UPRR ROW pose an additional barrier to the area.²⁹⁹ Despite these challenges, there is opportunity to build upon the historic assets of this area.



Figure 34. Historic assets in the Old Town Kern area and along Truxtun Avenue.

Note: Left image shows Baker Street looking northward. Center image is a view of the north side of the historic former train station, currently owned by UPRR. Right image is of Old Church Plaza (formerly a Baptist Church), which is located along Truxtun Avenue and currently used as offices.

Source: Author (2010).

The Old Church Plaza, a historic former Baptist church located at the northeast corner of the Truxtun Avenue/L Street intersection, provides a historic asset right in the central business district to the west of the proposed HSR station area (see Figure 34).

8.2.4 Transportation

The Bakersfield Amtrak Station is currently the southern terminus of Amtrak's San Joaquin line and includes a large bus depot providing connections to many areas of southern California, including Los Angeles and Coachella Valley.³⁰⁰ While the arrival of HSR may alter Amtrak's operations, Bakersfield is still likely to be a hub for connecting bus services to surrounding areas for both Amtrak and HSR services. Furthermore, Bakersfield is the one city in the SJV where both HSR and Amtrak will meet at the same station (as opposed to cities such as Fresno where the Amtrak and HSR stations will be located along different railroad corridors). This will help establish Bakersfield as the primary transfer point between Amtrak and HSR for people traveling in the southern-portions of the SJV.

There are two major east-west-running streets likely to provide good automobile access to the future HSR station. Truxtun Avenue, north of the HSR station sites, will provide access from the downtown area. California Avenue, south of the HSR station sites, will provide access from SR 99 to the west and Union Ave/SR 204 to the east. Both streets will likely be used as the primary automobile routes to the planned HSR station.

²⁹⁸ Ibid.

²⁹⁹ Ibid.

³⁰⁰ Amtrak, "San Joaquin,"

http://www.amtrak.com/servlet/ContentServer?c=AM_Route_C&pagename=am%2FLayout&cid=1241245650084 (accessed November 11, 2010).

8.3 CONSTRAINTS

Constraints to TOD around Bakersfield’s planned HSR station are discussed below in terms of location, land use, and transportation.

8.3.1 Location Constraints

Bakersfield’s location at the southern end of the SJV puts it out of range as a gateway city to the national parks in the Sierra Nevada mountain range, as opposed to Fresno and Merced, which are well positioned as access points to these attractions. Some people may choose to use HSR to Bakersfield on their way to recreational activities at Kern River and Lake Isabella, but these are not major destinations, and will likely not produce significant economic activity.³⁰¹

8.3.2 Land Use Constraints

The presence of numerous absentee property owners has constrained efforts to revitalize downtown Bakersfield for many years.³⁰² Many of these property owners are not willing to pursue new development on their downtown properties, nor are they willing to sell. The result, according to Bob Bell, is that “Bakersfield’s downtown is the most underdeveloped downtown in the nation for a city its size.”³⁰³ HSR may help increase land values, possibly freeing some of this land in the future. However, the result of this situation is that Bakersfield has few assets in the downtown area to leverage in support of future TOD.

Another land-use constraint to successful TOD in the BSA is the dispersed nature of existing assets. Many downtown assets are well over half of a mile from the HSR station sites and are widely separated from each other geographically within the BSA. Due to this situation, tying the various assets together and to the HSR station will be challenging. The historic and cultural area around 19th and H Streets, located in the northwest corner of the BSA, is over three-quarters of a mile from the HSR station sites. The central business district, located in the western portion of the BSA, lies more than a half-mile from the station sites. Central Park, the Bakersfield Museum of Art, and the site of the new Federal courthouse, all located in the northern and central area of the BSA, are approximately a half-mile in distance from the station sites. The previously mentioned entertainment/recreation area lies southwest of the proposed station sites and is isolated from other assets. Finally, the Old Town Kern area, located in the northeast corner of the BSA, is also beyond a half-mile in distance from the station area.

The Rabobank Arena Theater and Convention Center complex is limited in size and may hinder the potential to accommodate increasing numbers and sizes of conferences that are likely to be associated with HSR service. Even today, there are indications that the RATCC could book larger events if the facilities were more extensive.³⁰⁴

³⁰¹ Eggert interview.

³⁰² Ibid.; Bell interview; Kunz interview.

³⁰³ Bell interview.

³⁰⁴ Kunz interview.

Bakersfield has also allowed for the creation of a concentrated office park area in the southwestern area of the city.³⁰⁵ The result is that many private businesses have located their offices away from downtown. According to Jim Eggert, Planning Director of the Development Services Department - Planning Division, it may be difficult to draw businesses back to the downtown from these areas.

8.3.3 Transportation Constraints

Currently, Golden Empire Transit operates several bus lines in downtown Bakersfield, running at approximately 20 to 30 minutes intervals.³⁰⁶ This basic bus system will help provide some connectivity to areas surrounding the downtown. However, currently no bus-rapid transit or light-rail lines serve Bakersfield. Aside from intercity Amtrak service, there is no commuter rail serving the region. This lack of high-quality public transportation infrastructure could be a deterrent to people visiting Bakersfield by way of HSR.

³⁰⁵ Eggert interview.

³⁰⁶ Golden Empire Transit, "Maps and Timetables," <http://www.getbus.org/maps> (accessed November 11, 2010).

Chapter 9: Bakersfield Planning Profile

This chapter examines existing planning documents and studies completed by governmental agencies and other stakeholder organizations that are relevant to TOD and HSR in Bakersfield. Furthermore, current planning efforts are examined to assess how effectively the City of Bakersfield is planning for TOD and HSR. Generally, existing planning documents support TOD. However, these documents contain little discussion as to how TOD specifically relates to the planned HSR station. Current land use planning efforts related HSR are now becoming more active, after a period of relative inactivity.

9.1 EXISTING PLANS AND STUDIES

Existing plans and studies relevant to Bakersfield include documents that cover both the entire SJV and Bakersfield specifically. However, plans covering the SJV are discussed at length in Chapter 6: Fresno Planning Profile. Therefore, this chapter does not distinguish SJV plans from Bakersfield-based plans, though some SJV-wide plans are briefly discussed. Please refer to Chapter 6: Fresno Planning Profile for general planning principles that cover the entire SJV and Figure 23, which illustrates the eight-county area that defines the SJV.

In 2001, the Kern Transportation Foundation, a non-profit organization that works with public officials to improve transportation in Kern County, released a study titled *Metropolitan Bakersfield High-Speed Rail Terminal Analysis and Evaluation*.³⁰⁷ This study recommends that the Authority focus on evaluating three possible locations for the HSR station. Of these three, one is located at the Truxtun Avenue/S Street intersection (the current site of the Amtrak station). Following this study, the Kern Council of Governments released a follow-up report in 2003 titled *Metropolitan Bakersfield High Speed Rail Terminal Impact Analysis*.³⁰⁸ This report recommends that the Truxtun Avenue site be the only location pursued for a HSR station. Furthermore, the report illustrates several conceptual land-use plans for the immediate area surrounding the Truxtun Avenue site. Of these land use plans, one assumes that the planned Centennial Corridor highway avoids the HSR station site, which is now a strong likelihood (see Figure 35).³⁰⁹ Therefore, this plan is the most relevant to this research. This plan envisions housing, some commercial, parking, light industrial, and a “potential development site.”³¹⁰ However, according to the literature, the predominance of housing and the continuation of light industrial uses are not supportive of HSR.

³⁰⁷ Kern Transportation Foundation, *Metropolitan Bakersfield High-Speed Rail Terminal Analysis and Evaluation*, April 2001, inside cover page and 18, <http://www.ktfonline.org/miscpdfs/BakHSRTerminalAnalysis.pdf> (accessed November 14, 2010).

³⁰⁸ Kern Council of Governments, *Metropolitan Bakersfield High Speed Rail Terminal Impact Analysis*, July 2003, E-5 and 5-3 – 5-4, http://www.kerncog.org/docs/hsr/HSR_Terminal_200307.pdf (accessed November 13, 2010).

³⁰⁹ Eggert interview; Kunz interview.

³¹⁰ Kern Council of Governments, *Metropolitan Bakersfield High Speed Rail Terminal Impact Analysis*, July 2003, Figure 5-7, http://www.kerncog.org/docs/hsr/HSR_Terminal_200307.pdf (accessed November 13, 2010).

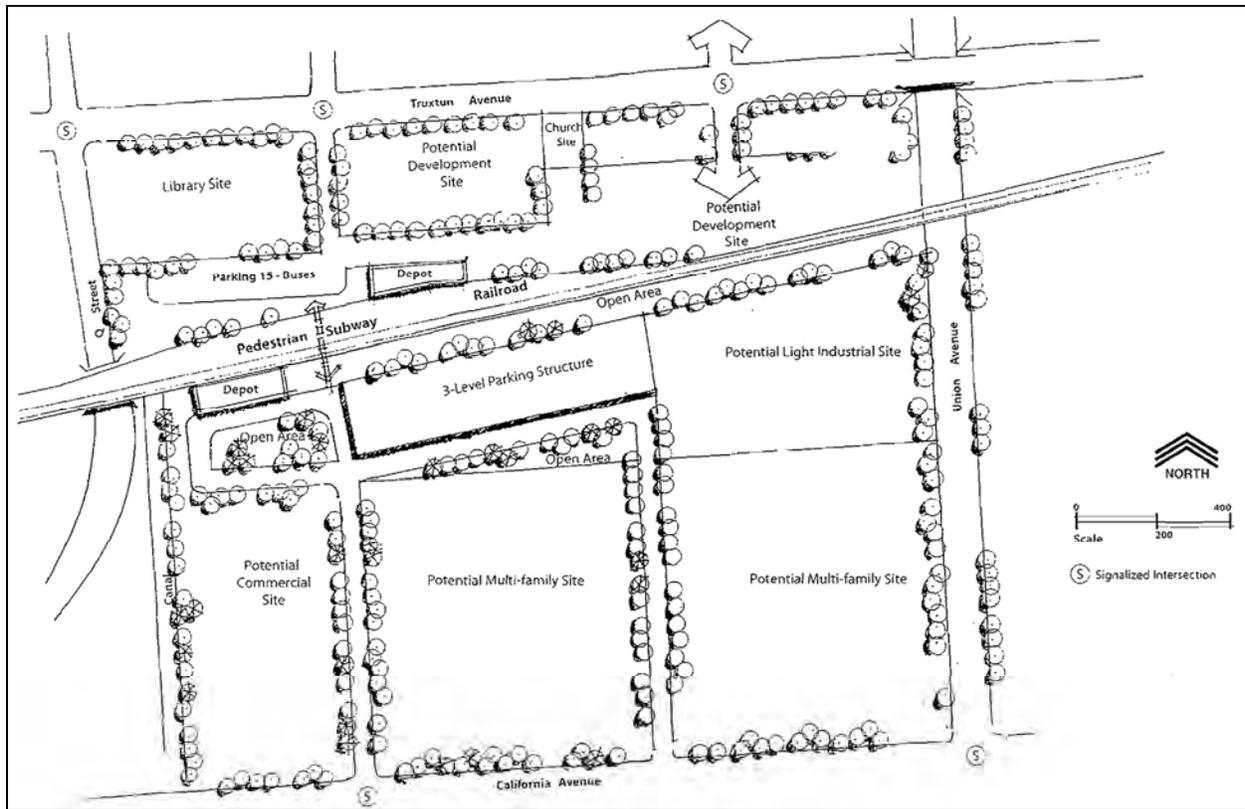


Figure 35. A conceptual land-use plan for the area surrounding a high-speed rail station located near Truxtun Avenue in downtown Bakersfield.

Source: Kern Council of Governments, *Metropolitan Bakersfield High Speed Rail Terminal Impact Analysis*, July 2003, Figure 5-7, http://www.kerncog.org/docs/hsr/HSR_Terminal_200307.pdf (accessed November 13, 2010).

Subsequent to the *Metropolitan Bakersfield High Speed Rail Terminal Impact Analysis* report, the Authority selected the Truxtun Avenue/Amtrak Station area as their preferred station location for Bakersfield in their 2005 *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System*.³¹¹ The Authority has since further defined the station location by identifying two specific sites near the Truxtun Avenue/Amtrak Station location for additional study in their 2010 *California High-Speed Train Project: Fresno to Bakersfield Section Preliminary Alternatives Analysis Report*.³¹² Both these stations sites are discussed in detail in Chapter 8.

³¹¹ California High-Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, 6A-16 – 6A-17, *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System - Volume 1: Report*, August 2005, <http://www.cahighspeedrail.ca.gov/library.asp?p=7226> (accessed January 10, 2010).

³¹² California High Speed Rail Authority and U.S. Department of Transportation - Federal Railroad Administration, *California High-Speed Train Project: Fresno to Bakersfield Section Preliminary Alternatives Analysis Report*, June 2010, 4-50 and 4-53, http://www.cahighspeedrail.ca.gov/images/chsr/20100623191810_FB%20Prelim%20AA%20Rpt%206%202%202010.pdf (accessed August 22, 2010).

The 2002 *Metropolitan Bakersfield General Plan (MBGP)*, a joint effort between the City of Bakersfield and the County of Kern, is the primary guiding document for planning land use in downtown Bakersfield.³¹³ In the *MBGP*, the downtown Bakersfield area is identified as an “Intensified Activity Center,” which is defined as a commercial center with major commercial uses in a compact form. Land uses envisioned in this activity center include governmental, financial, professional office, retail, residential, cultural, specialty, and supporting uses. Pedestrian-sensitive uses and design characteristics are also envisioned. Furthermore, the renovation and adaptive reuse of significant cultural and entertainment facilities in downtown is envisioned by utilizing redevelopment tools such as incentives for private development, joint public-private partnerships, and publicly-funded improvements. While concepts in the *MBGP* are encouraging, according to the 2009 *Draft Metropolitan Bakersfield General Plan Update: Existing Conditions, Constraints and Opportunities Report*, “The 2002 *Metropolitan General Plan* lacks clear direction and guidance for implementation of the Centers concept.”³¹⁴

More specifically, a large portion of the BSA, located west and northwest of the proposed HSR station sites, is assigned the Mixed Use Land Use Designation in the *MBGP*.³¹⁵ This designation envisions intensive commercial centers and allows for land uses supportive of HSR. Allowable land uses include professional office, major retail, commercial support services, and medium- to high-density residential. The General Commercial Land Use Designation applies to a majority of parcels along Union and California Avenues. It allows development up to four stories, quite low for a HSR station area. Also applying to large portions of the BSA located northeast and east of the proposed HSR station sites are the Light Industrial and Service Industrial Land Use Designations. These land uses are not supportive of HSR land uses.

The 2008 *Kern Regional Blueprint Program: Final Report (KRBP)* provides some insight into the general direction the next general plan will likely take. Completed as part of an eight-county SJV-wide effort, the *KRBP* outlines four growth scenarios for Kern County.³¹⁶ Of these four, one is identified as the preferred scenario. This preferred scenario encourages moderate growth of the core urban areas, with some mid- to high-rise development containing a mix of residential, office, and commercial land uses for the metropolitan center of Bakersfield (i.e downtown). Additionally, mixed-use centers are envisioned, while infill development at smaller sites is discouraged. Single-family homes are envisioned to provide 67% of the new housing for Kern County.

³¹³ City of Bakersfield and County of Kern, *Metropolitan Bakersfield General Plan*, December 2002, inside cover page and II-11 – II-14, <http://www.bakersfieldcity.us/weblink7/ElectronicFile.aspx?docid=867985> (accessed January 14, 2010).

³¹⁴ City of Bakersfield and County of Kern, *Draft Metropolitan Bakersfield General Plan Update: Existing Conditions, Constraints and Opportunities Report*, April 2009, 2.1-5, <http://www.bakersfieldcity.us/weblink7/ElectronicFile.aspx?docid=787358> (accessed January 14, 2010).

³¹⁵ *Ibid.*, II-7 – II-8; City of Bakersfield and County of Kern, “Metropolitan Bakersfield General Plan: City of Bakersfield and County of Kern [land use map],” June 30, 2010, http://www.bakersfieldcity.us/cityservices/devsrv/development_maps/pdfs_maps/GP_LandUse.pdf (accessed November 14, 2010).

³¹⁶ Kern Council of Governments, *Kern Regional Blueprint Program: Final Report*, December 2008, 75-80, http://www.kerncog.org/blueprint/pdf/KernBlueprint_FINAL.pdf (accessed November 14, 2010).

The desire for only moderate growth in the core urban areas and the emphasis on single-family homes demonstrates a somewhat less aggressive approach toward densification than the approach Fresno County is taking. There does appear to be some accommodation for higher densities in downtown Bakersfield however. Additionally, the *KRBP* does not include a strong vision for utilizing the planned HSR station as an anchor for a major development in the downtown area. The report also does not explicitly discuss TOD, though TOD is implied in the various development nodes mentioned.

The process of updating the 2002 *MBGP* began in May 2007.³¹⁷ The general plan update is a joint planning effort of the City of Bakersfield and the County of Kern. Due to staff reductions at the City of Bakersfield and reorganization at Kern County, the update process was suspended for a period of time.³¹⁸ However, the resumption of the planning process for the general plan update is anticipated for January 2011.³¹⁹ Prior to the suspension in planning, a preliminary report was released in 2009. The *Draft Metropolitan Bakersfield General Plan Update: Existing Conditions, Constraints and Opportunities Report* reveals issues that relate to the general plan update.³²⁰ The report provides a set of recommendations that are generally favorable to TOD and HSR. Two relevant policy recommendations include:

- “Incorporate policies that encourage specific types of mixed-use development, including transit oriented. Coordinate policies and implementing actions with redevelopment plans and programs of the Redevelopment Agency to encourage mixed-use and transit-oriented development. Incorporate policies to allow for exceptions to the existing thresholds of significance and reduce barriers to mixed-use and higher density development.”
- “Incorporate policies that support the proposed high speed rail system, encouraging public transportation links to the station, and promoting transit-oriented residential development with densities that could make the establishment of a high speed rail station viable.”

The recommendations in this report are encouraging and indicate that the City of Bakersfield is potentially pursuing a more aggressive approach to TOD and beginning to relate it more directly to transit and HSR.

Another plan related to the general plan update is the 2009 *City of Bakersfield: Final Housing Element of the General Plan – 2008-2013*. This document discusses land uses along transit

³¹⁷ City of Bakersfield, “Metropolitan Bakersfield General Plan: Project Description,” <http://www.bakersfieldcity.us/mbgp/project.html> (accessed December 8, 2010).

³¹⁸ Jim Eggert, Planning Director, Development Services Department – Planning Division, City of Bakersfield, in a personal interview by author, Bakersfield, CA September 14, 2010.

³¹⁹ Eggert e-mail message to author, December 7, 2010.

³²⁰ City of Bakersfield and County of Kern, *Draft Metropolitan Bakersfield General Plan Update: Existing Conditions, Constraints and Opportunities Report*, April 2009, 2.1-16 and 2.1-21, <http://www.bakersfieldcity.us/weblink7/ElectronicFile.aspx?docid=787358> (accessed January 14, 2010).

corridors that consist of higher density housing and employment centers.³²¹ This document shows an increased commitment to TOD by the City of Bakersfield. However, this document does not mention how housing will relate to the planned HSR station area.

While the City of Bakersfield and Kern County are supporting the creation of TOD, there seems to be little commitment in the near-term to investing in the expansion of public transportation systems – a key aspect of successful HSR-based TOD. This is reflected in the recently released *2011 Final Regional Transportation Plan (2011 Bakersfield RTP)*, which was produced by the Kern Council of Governments. The *2011 Bakersfield RTP* does not propose any commuter rail or rapid transit projects before 2035.³²² After 2035, a commuter rail project is proposed that would run between Wasco and Bakersfield and function as a feeder service for HSR. A BRT/HSR feeder bus system is also planned for implementation after 2035. Additionally, a high-occupancy vehicle and bus lane system is proposed for after 2035. A light-rail project is also envisioned. Total spending on major new public transportation infrastructure projects during the period of the *2011 Bakersfield RTP* (prior to 2035) is essentially non-existent. After 2035, the *2011 Bakersfield RTP* envisions a combination of public transportation projects and rail projects with a cost totaling over \$800 million.

Conversely, approximately \$4 billion is designated in the *2011 Bakersfield RTP* for highway projects prior to 2035.³²³ After 2035, approximately another \$6.5 billion is envisioned to be invested on highway projects. The Centennial Corridor is the centerpiece of the proposed Bakersfield Beltway System (see Figure 36). This project is envisioned to create a new corridor for SR 58 south of the existing corridor, between SR 99 and Interstate 5. The new corridor would also provide a direct connection to downtown Bakersfield, providing increased automobile access, mainly from western Bakersfield. Additionally, three beltway projects – the South Beltway, the North Beltway, and the West Beltway – are all located outside of downtown Bakersfield. In addition to the beltways, the Westside Parkway project, another highway extending westward from downtown, is currently being pursued.

Much of the literature attests to the importance of good highway access to the HSR station from surrounding regions. Currently, eastern Bakersfield is already served by a highway (SR 58), which runs east of SR 99. State Route 99 provides highway access to the downtown from the north and south. However, there is currently no highway west of downtown. The Centennial Corridor highway project will likely improve access to the station area and downtown Bakersfield from the western Bakersfield metropolitan area and from areas along Interstate 5. Furthermore, the planned alignment of the project will likely avoid the HSR station area (whereas some consideration had been given to an alignment through the HSR station area),³²⁴ preserving land for TOD that otherwise would have been utilized for the highway ROW. The Westside Parkway

³²¹ City of Bakersfield, *City of Bakersfield: Final Housing Element of the General Plan – 2008-2013*, February 25, 2009, 2-83, <http://www.bakersfieldcity.us/weblink7/0/doc/837116/Electronic.aspx> (accessed November 14, 2010).

³²² Kern Council of Governments, *2011 Final Regional Transportation Plan*, July 15, 2010, 4-21 – 4-36, http://www.kerncog.org/docs/rtp/KernCOG_2011_RTP.pdf (accessed November 14, 2010).

³²³ *Ibid.*, 4-4 – 4-5 and 4-21 – 4-36.

³²⁴ Eggert interview; Kunz interview.

will also provide access from southwestern Bakersfield directly to Truxtun Avenue in downtown, likely relieving traffic on California Avenue, which is the only route from SR 99 to the HSR station site.

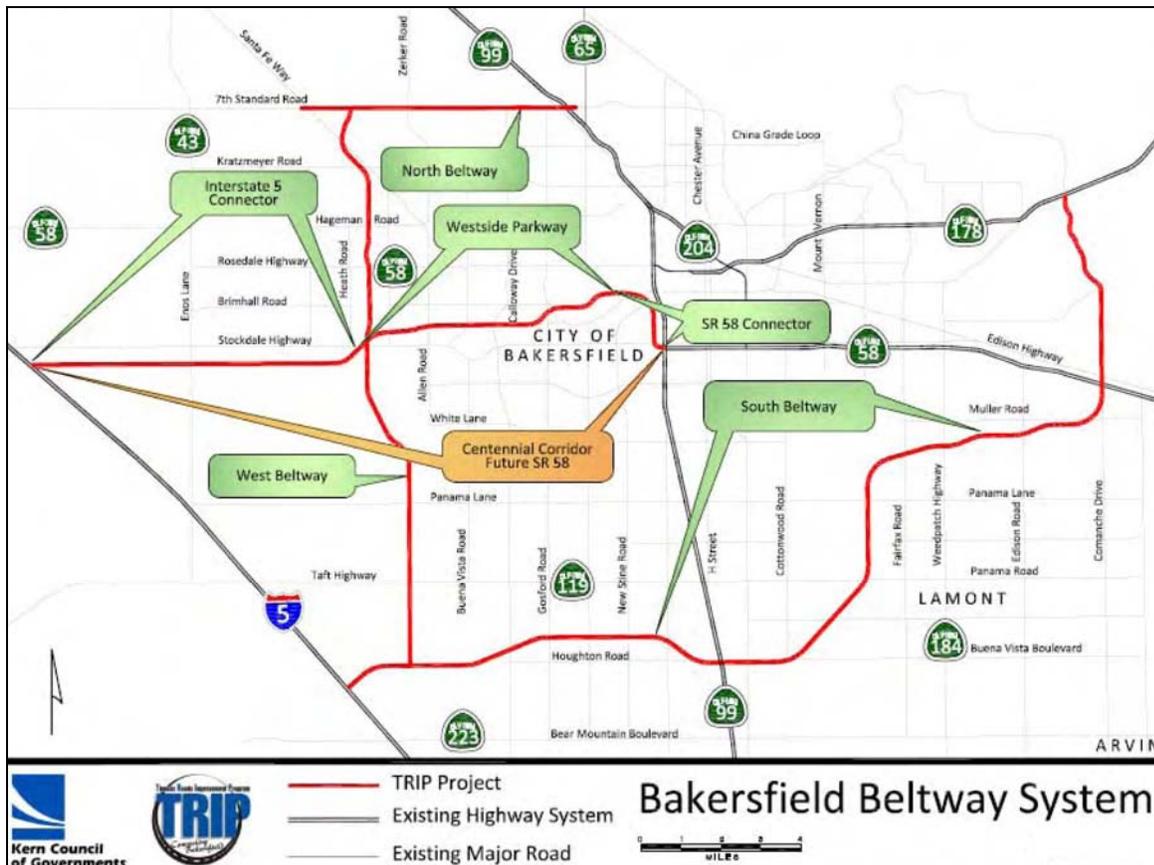


Figure 36. Proposed Bakersfield beltway system in the *2011 Final Regional Transportation Plan*.

Source: Kern Council of Governments, *2011 Final Regional Transportation Plan*, July 15, 2011, 4-5, http://www.kerncog.org/docs/rtp/KernCOG_2011_RTP.pdf (accessed November 14, 2010).

9.2 CURRENT PLANNING EFFORTS

As previously mentioned, the City of Bakersfield and Kern County are anticipating that the planning process to update the 2002 *MBGP* will resume in January 2011. According to Jim Eggert, the general plan update will strengthen the concept of “centers” (i.e. dense, mixed-use development nodes identified in previous planning documents), as well as further defining the downtown and the potential for TOD in downtown and around the HSR station area.³²⁵ These foci of the general plan update provide a good foundation for proceeding with more detailed planning for the HSR station area.

³²⁵ Eggert e-mail message to author, December 6, 2010.

In addition to the update of the *MBGP*, conceptual planning is being undertaken for the HSR station area. The City of Bakersfield recently signed a memorandum of understanding with the Kern Council of Governments to engage in conceptual planning for the HSR station area.³²⁶ As part of this planning, concepts for development and public infrastructure are being illustrated.³²⁷ To represent these concepts, a set of 3-D visualizations are being generated. Additionally, multimodal and marketing studies will be produced. Completion of this work is anticipated for the summer of 2011. The creation of these conceptual plans is an indication that the City of Bakersfield and Kern County are becoming more engaged in station area planning efforts, which is essential to leveraging the HSR station to create significant economic development.

The City of Bakersfield Economic and Community Development Redevelopment Division is also contributing to long-range planning efforts in downtown Bakersfield by facilitating key development projects. Recently, Mill Creek Linear Park, the largest redevelopment project in Bakersfield's history, was completed.³²⁸ Several new housing developments, partially funded by housing set-aside funds, are under construction. The new Federal courthouse, another redevelopment project adjacent to the MCLP, is also under construction. In the HSR station area, redevelopment efforts have resulted in the development of the Maya Cinemas and the McMurtrey Aquatic Center. A hotel is also in the works at 13th and Q Streets, adjacent to the MCLP.³²⁹ More shops and a restaurant are also under development near the Maya Cinemas site. Along Baker Street in Old Town Kern, a new mixed-use development is under construction, which will consist of five new commercial buildings and 84 residential units.³³⁰ These redevelopment projects are creating assets in the downtown that will likely stimulate TOD related to HSR.

9.3 GENERAL CONCLUSIONS

Early in the planning of the HSR project, the Bakersfield region engaged in extensive study on where to place the HSR station in downtown and to a lesser extent, explored conceptual land-use concepts for the station area. This foresight led the Authority to adopt the region's preferred HSR station site, just south of Truxtun Avenue at the Amtrak Station.

While there has not been a great deal of progress on station area planning over the last few years, partially due to the delay in completing the general plan, it appears planning efforts are moving forward again. The resumption of the general plan update and the initiation of conceptual planning for the station area bode well for TOD planning around the HSR station. Additionally, the initial set of recommendations contained in the *Draft Metropolitan Bakersfield General Plan*

³²⁶ Ibid.

³²⁷ Troy Hightower, Regional Planner, Kern Council of Governments, telephone conversation, December 7, 2010.

³²⁸ Donna Kunz, "Look Around: Redevelopment Works, *The Bakersfield Californian*, November 8, 2010, <http://www.bakersfield.com/opinion/community/x1003410973/DONNA-KUNZ-Look-ar> (accessed November 10, 2010).

³²⁹ Sean Work, "Government Roundup: Hotel, Possible Brewery, on Tap for Mill Creek," *The Bakersfield Californian*, July 12, 2010, <http://www.bakersfield.com/news/local/x1685665611/Government-roundup-Hotel-possibly-brewery-proposed-for-Mill-Creek> (accessed November 14, 2010).

³³⁰ City of Bakersfield Economic and Community Development, "Bakersfield Redevelopment News," <http://www.bakersfieldbiz.us/news.html> (accessed November 16, 2010).

Update: Existing Conditions, Constraints and Opportunities Report are very encouraging in terms of TOD and HSR.

The continued partnership between the City of Bakersfield and the County of Kern in producing the general plan, while useful in coordinating efforts and saving on costs, could pose challenges for focusing TOD in the downtown area due to the potential for competing interests. While there is support for increasing the density downtown in both the *MBGP* and *KRBP*, the continued priority given to single-family home development will likely hinder efforts to increase the density in downtown. Additionally, if County interests advocate for office parks, housing, and shopping centers at the periphery of Bakersfield, it may be difficult to concentrate a sufficient number of businesses, shops, and homes downtown to create a truly vibrant urban core.

Redevelopment activities are serving as a catalyst for downtown revitalization. Mill Creek Linear Park is creating a north-south spine of revitalization which is already leading to numerous developments on adjacent parcels. While this is good for revitalization, it unfortunately is not part of a grander vision for the HSR station area and the entire downtown. However, this situation may change due to the new planning about to commence.

In terms of transportation, the Centennial Corridor and Westside Parkway are likely to facilitate access to the HSR station due to the direct access provided to downtown by both highways. However, the scale of the envisioned beltway system goes well beyond serving the downtown area. Three beltway projects being planned completely bypass downtown Bakersfield. These proposed beltways, if built, are likely to draw funds away from investment in public transportation improvements, which are needed to support HSR. These outer beltways are also likely to draw economic activity away from the downtown in favor of sprawl development, possibly reducing the economic impact of the HSR station.

It appears that new public transportation infrastructure is currently given low priority in the Bakersfield region, in contrast to the numerous highways being prioritized. This situation does not bode well for providing balanced, multimodal connections to the HSR station. Furthermore, planning for the continuation of an almost exclusively automobile-based transportation system will necessitate the construction of much larger parking structures to accommodate HSR riders, most of who will be forced to drive to the HSR station. Larger parking structures also reduce the amount of land around the station available for TOD. Transportation priorities will need to dramatically change if Bakersfield is to provide effective multimodal connections to the HSR station and to ensure TOD is not dominated by parking garages. The inclusion of a multimodal study, as part of the conceptual planning being conducted for the HSR station area, does indicate that there may be an appetite for a more balanced approach to transportation in the future.

Chapter 10: Recommendations for Bakersfield

Recommendations specific to Bakersfield are discussed in terms of land use, transportation, urban design, and public-sector involvement. Figure 37 illustrates many of the recommendations contained in this chapter.

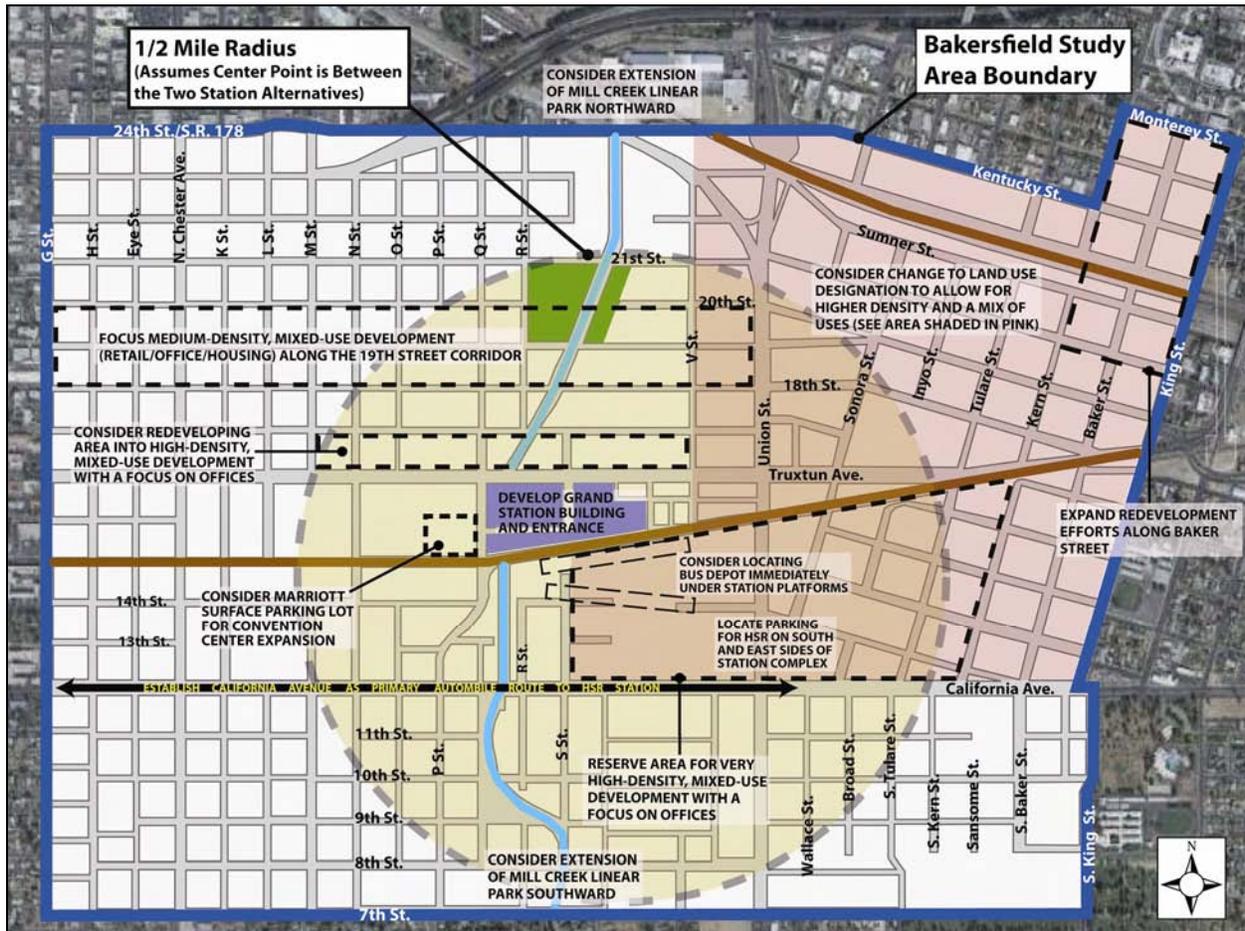


Figure 37. Recommendations Map for the Bakersfield Study Area.

Source: Image created by author (2010). Base aerial image courtesy of Google Earth (2010).

10.1 LAND USE

Bakersfield has tremendous opportunity for economic development in the areas immediately surrounding the HSR station site. The numerous industrial sites in the vicinity of the planned HSR station provide an excellent opportunity for redevelopment to land uses that support HSR. The Mill Creek Linear Park also helps to tie together assets of the downtown to areas immediately north and south of the HSR station site. Extending the revitalization to all areas of the downtown area will be critical. Below are several recommendations that seek to promote business, tourism, and the efficient use of land to allow for maximum economic development.

Consider developing a mixed-use HSR station complex of significant size and stature so that it becomes a destination and an iconic landmark.

Whereas Fresno is positioned to become a gateway city to the national parks in the Sierra Nevada mountain range, Bakersfield lacks identifiable destinations. Therefore, developing Bakersfield's future HSR station to be a destination itself should be considered. Experience in Japan has demonstrated the potential for developing HSR station complexes as mixed-use attractions that contain entertainment, dining, shopping, and space for public gathering (see Kyoto Station case study in Chapter 3 of this report). Consider commissioning a private development company, potentially the operator of the HSR system, to build the station complex to maximize the potential that land uses in the station are compatible with HSR.

Redevelop the parking lots of Beale Memorial Library and the Amtrak station into a large, mixed-use HSR station complex that includes the main entrance to the station.

To allow for the creation of a significant HSR station complex and associated facilities, the surface parking lots for Beale Memorial Library and the Amtrak station should be redeveloped. Parking could potentially be replaced by a multi-level parking structure shared by HSR, the library, and Amtrak. As part of such a complex, consider land uses that include office and convention center space, a downtown shopping entertainment/shopping center, and hotel space. A grand entrance to the HSR station complex should be incorporated into this complex that faces northward along Truxtun Avenue so it is oriented toward the core of downtown Bakersfield.

Consider redeveloping the current site of the Best Western Hill House motel on the north side of Truxtun Avenue into a large hotel and/or office space.

The block that the Best Western Hill House motel currently occupies is immediately north of what is likely to be the primary entrance into the HSR station. This site is an ideal candidate for more intensive land uses associated with a HSR station. Consider augmenting the hotel space provided by the nearby Bakersfield Marriott at the Convention Center with another large hotel. Office space should also be considered for this site. Also consider connecting new development at this site to the HSR station structure by an elevated pedestrian walkway over Truxtun Avenue. The redevelopment of this site would also allow for an extension of the Mill Creek Linear Park through the site, which would close the gap that currently exists between 17th Street and Truxtun Avenue.

Concentrate high-density, mixed-use development, with a focus on new office space, in the immediate vicinity of the HSR station.

The rationale for concentrating new office space, along with other business-supportive land uses, within walking distance of the HSR station, is to create a vibrant business center that caters to businesses requiring frequent long-distance travel. It would establish a new business focal point in downtown while still connecting to the existing business focal point that surrounds the Truxtun Avenue/Chester Avenue intersection. Specifically, focus mixed-use office development at the following areas: 1) the north side of Truxtun Avenue between M and V Streets; 2) immediately south of the HSR station sites, between S Street and Union Street; and 3) immediately east of Union Street, between Truxtun and California Avenues.

The area immediately south of the HSR station sites, is probably the best site for the creation of an extremely high-density, mixed-use business center. Therefore, housing and retail

development, currently underway as part of redevelopment efforts, should be contained west of S Street for the time being, until land use plans can be solidified east of S Street. Low- to mid-rise development on this site should be avoided.

Change existing industrial land use designations in the update of the general plan to allow for high-density, mixed-use development.

Much of the eastern portion of the BSA is still designated in the *MBGP* with either the Light Industrial or Service Industrial Land Use Designations. Consideration should be given to changing these land use designations for these areas in the forthcoming update of the *MBGP* to allow for high-density, mixed-use development. Industrial land uses are not supportive of HSR.

Consider the Bakersfield Marriott at the Convention Center surface parking lot for additional convention center space.

The existing surface parking lot located immediately south of the Bakersfield Marriott at the Convention Center and immediately east of the Rabobank Arena Theater and Convention Center, is a prime site for expansion of convention center space. With the arrival, HSR will likely bring increased demand for conferences. Furthermore, surface parking lots in the vicinity of HSR stations are a poor use of land.

Focus medium-density, mixed-use development along the 19th Street corridor.

The 19th Street corridor is uniquely positioned in downtown to tie together several assets. The street runs between the historic area in western downtown, represented by the Bakersfield Fox Theater and the Padre Hotel, and the activity node at the intersection of Mill Creek Linear Park and 19th Street, which is surrounded by the Bakersfield Museum of Art, the revitalized Central Park, and soon-to-open Federal courthouse. Nineteenth Street also has the potential to become a thriving commercial corridor, with ground floor shops facing wide sidewalks. Additional medium-density, mixed-use development along this corridor, along with further improvements to the streetscape, would create a nice pedestrian route between the two activity nodes described above. Furthermore, due to its intersection with the MCLP, the corridor is positioned to be a key component of a continuous, high-quality pedestrian circulation system that ties much of downtown to the HSR station. As part of any development efforts, the existing historic, cultural, and recreational assets should be enhanced to strengthen the identity of the corridor.

Continue redevelopment efforts along Baker Street in Old Town Kern.

The Baker Street commercial corridor in Old Town Kern has the potential to become a thriving neighborhood commercial street in the northeast portion of the downtown area. A flourishing Old Town Kern area would provide another focal point in the downtown area to tie to other revitalization efforts and the HSR station. Improvements to the 19th Street/20th Street corridor could potentially create a pedestrian route that connects Baker Street to Mill Creek Linear Park, and in turn, to the HSR station. The rich history of the area, as a former railroad town, should be exploited, as should the old train station building. Redevelopment efforts have already begun, with the large mixed-use project mentioned in Chapter 9 and various streetscape improvements. Such efforts should be continued and expanded.

10.2 TRANSPORTATION

The development of transportation infrastructure to support access to the HSR station will require a balanced, multimodal approach. Therefore, the following recommendations focus on tempering the highway projects currently envisioned, while encouraging more investment in public transportation and other modes of transportation.

Prioritize the Centennial Corridor project over other highway projects.

This project will provide highway access to the HSR station from western Bakersfield. Currently, no major highway connects downtown and areas to the west. Furthermore, this corridor will eventually connect directly to Interstate 5, which will provide even more access to and from the region to the west. The literature documents the importance of convenient automobile access to HSR stations. Therefore, prioritizing this corridor over all other planned highways is recommended.

Ensure that the alternative for the planned Centennial Corridor project – along the BNSF ROW and through HSR station sites – is not selected.

This alternative alignment for the planned Centennial Freeway would consume great amounts of land in the vicinity of planned HSR station. As a result, opportunities for TOD in the southern portion of the HSR station area would be significantly reduced. Furthermore, the quality of the urban environment would be greatly diminished. It would also bisect downtown.

De-prioritize the outer beltway projects that do not connect to the downtown – including the North Beltway, the West Beltway, and the South Beltway – in favor of investing in a robust public transportation system.

These three beltway projects all have planned routes that would bypass downtown. These types of freeways fuel sprawl development at the expense of city center areas. Consideration should be given to scaling back these projects and transferring the funds saved into bolstering the public transportation system. Prioritizing the funding of these freeways over the next 25 years will likely eliminate the possibility of significantly investing in a rapid forms of public transportation such as BRT and feeder rail services to the HSR station. Bakersfield is at a crossroads. It can continue to pursue transportation policies that promote sprawl at the expense of downtown, or it can maximize the HSR investment by committing to developing a robust public transportation system.

Focus automobile access to HSR parking structures via California Avenue.

Placing parking facilities along Truxtun Avenue would destroy the opportunity to have a grand entrance to the station that faces the street. Furthermore, access from SR 99 to downtown is along California Avenue. Rather than encourage drivers to utilize Truxtun Avenue from SR 99, traffic should be focused on California Avenue to access HSR parking garages located on the south and east sides of the HSR station complex. Some automobile access along Truxtun Avenue may be desirable due to the fact that the future Westside Parkway will connect directly to Truxtun Avenue and the likelihood that many people will access the HSR station from the northern portion of downtown. However, any access to HSR parking structures from Truxtun Avenue should be unimposing, so as not to detract from the architecture and utility of the station complex entrance. Furthermore, such access should lead to parking structures that are away from

the station entrance and potentially located under the station platforms or to the south and east of the station complex.

Consider creating a bus depot immediately under the HSR station platforms to increase the efficiency of transferring between the two modes of travel.

Due to the great height of the planned HSR station platforms, locating the bus depot underneath the HSR station platforms should be seriously considered. This would allow for rapid transfers between bus and rail modes.

Accelerate plans to establish commuter rail service between Wasco and Bakersfield that connects to the future HSR station.

Establishing commuter rail service that serves areas to the north of Bakersfield along the BNSF corridor, and connects them to the planned HSR station, will be critical to providing regional rail connections. Such a commuter rail project could likely move forward more quickly if some of the aforementioned highway projects were de-prioritized.

Accelerate and greatly expand plans for a citywide bus rapid transit system that connects to the future HSR station.

As previously mentioned, the *2011 Bakersfield RTP* does not plan for the implementation of BRT until after 2035. The City of Bakersfield should strongly consider accelerating plans for BRT and begin planning key projects immediately. Implementing a BRT system will likely entail difficult choices, including a shift of some resources from highway projects. However, strengthening the economic development of downtown Bakersfield will require an extensive and convenient public transportation system. BRT is likely to be the most financially feasible strategy for linking surrounding areas of Bakersfield to the HSR station and downtown.

Study the possibility of extending Mill Creek Linear Park northward and southward.

Extending MCLP should be considered to provide bicycle and pedestrian access to downtown and the HSR station from neighborhoods to the north and south. From the northern terminus at Golden State Avenue, a long overpass would likely be needed to span Golden State Avenue, industrial properties, and SR 178. Southward, the trail would be easier to extend, though a pedestrian/bicycle bridge might be warranted over California Avenue. The length of these proposed extensions would need to be determined by further study.

Develop pedestrian routes for viewing historic resources.

The creation of a well-marketed, self-guided walking tour of historic resources will likely increase the attractiveness of Bakersfield to visitors. Several pedestrian routes should be developed that originate at the planned HSR station. Encouraging people to walk beyond the station area will also help to spread the economic benefit of the HSR station and convention center areas outward. Legible and ample signage is critical to encourage people to participate in self-guided walking tour.

10.3 URBAN DESIGN

The urban design of the area immediately around the station will determine how well intermodal connections facilitate movement to and from the HSR station. Additionally, the urban design of the station will affect how efficiently land is used, impacting the potential for TOD. These urban

design recommendations do not focus on specific streets and building designs, as those are fairly well established for TOD in general.

Design the HSR station to have a vertical configuration.

The great height of the planned station platforms and track structures provides an opportunity to place connecting transit directly underneath them. According to the research discussed in the literature review, vertical intermodal station designs are much more efficient than horizontal ones. Therefore, space underneath station platforms and track structures should be reserved for numerous bus lines, as well as for future BRT service.

Integrate buildings directly underneath the station platforms and tracks.

The high station platforms and tracks that are planned to run through downtown have the potential of creating a negative visual impact. However, this can be mitigated by pursuing strategies to construct buildings directly underneath the tracks and platforms. If designed well, the tracks may not be visible at all. Instead, the tracks and platforms will appear as if they are a part of the built form of the new buildings. This, however, will require a high level of coordination with the Authority, early in the process.

Create a system of legible signage from the HSR station to various downtown areas.

Visitors arriving in Bakersfield should see clear signage and maps to all the various destinations in downtown. Signage should also clearly delineate pedestrian routes and connecting transit services.

10.4 PUBLIC-SECTOR INVOLVEMENT

As documented in Chapter 9, Bakersfield is currently embarking on planning efforts to lay the groundwork for maximizing the economic benefits of HSR. Below are recommendations that focus on strengthening current planning efforts.

As part of the current conceptual planning effort, develop a strong vision for both the HSR station complex and track structures.

Transit planning agencies (in this case, the Authority) often focus primarily on designing transit facilities that are oriented to transit operations, while often neglecting place-making attributes. For example, if the City of Bakersfield wants to pursue development under the tracks, city leaders and officials will need to push to ensure the design of the track structures will accommodate buildings. The same is true of the station design. Therefore, the City of Bakersfield should accelerate efforts to develop a detailed vision for both HSR station and the track structures that lead to the station. The conceptual planning getting underway provides an excellent opportunity of developing a strong vision and design preferences.

Absent a strong vision by the public-sector, the station is likely to be designed as a utilitarian structure rather than as a dramatic landmark. Furthermore, the research shows that efforts to coordinate the design of transit facilities require an ongoing effort until the project is complete.

Follow up conceptual planning of the HSR station area with a specific plan or comparable plan.

The creation of a specific plan or comparable plan should be considered as a follow up to conceptual planning currently taking place for the HSR station area. Concepts developed should be further vetted and developed as part of a more formal planning process that will lead to official adoption as City policy. A specific plan or other comparable planning instrument provides this type of official structure. If a lack of funding is a constraint to pursuing a specific plan, various grants should be explored. Partnerships with non-profits and/or academic institutions should also be pursued.

Develop incentives to induce large companies to locate offices in downtown Bakersfield near the HSR station.

The City of Bakersfield will need to focus on both providing services that cater to business and on marketing the benefits of locating in a vibrant downtown environment with access to HSR. The success of TOD around the planned HSR station in Bakersfield will be highly dependent on how much growth is focused in the downtown area versus more sprawl development in outskirts of Bakersfield or in unincorporated county areas.

The City of Bakersfield should explore developing a set of incentives for businesses willing to locate in downtown. Furthermore, these incentives should be heavily targeted to the dominant local industries – oil and agriculture. With the arrival of HSR, it may be more feasible for businesses in these industries (as well as others) to establish their headquarters, or at least major satellite offices, in Bakersfield.

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PART FOUR

CONCLUSION

Part 4 consists of the final chapter of this research report (Chapter 11), which summarizes the conclusions from the literature review, case studies, and from assessments conducted of planning in Fresno and Bakersfield. Additionally, the relevance of the research to the urban planning field and suggestions for further study are given.

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Chapter 11: Conclusion

The development of high-speed rail around the world has created new travel patterns between cities. These new travel patterns have also led to a demand for land uses at and around HSR stations that differ from established models of land use for TOD located along transit systems that serve a single metropolitan area.

California is currently planning a statewide HSR system. Planning TOD that is sensitive to the unique ridership market of HSR is critical for the state to fully leverage the economic benefits of HSR. This research is aimed to help two California cities – Fresno and Bakersfield – both of which are suffering economically and have great potential for TOD because they possess ample amounts of vacant and underutilized land.

This chapter summarizes the main conclusions drawn from the literature review and the three case studies contained in this research report. It also summarizes conclusions from the assessments done of TOD planning in Fresno and Bakersfield. Finally, a discussion regarding the relevance of this research to the urban planning profession is given, followed by suggestions for further study.

11.1 CONCLUSIONS – LITERATURE REVIEW

The literature review in this research report covers a wide range of topics related to the following: 1) the general economic trends relate to HSR stations, with a focus on mid-sized cities located between two or more very large metropolitan areas (as is the case for both Fresno and Bakersfield); 2) the various land uses that support economically successful TOD; 3) transportation infrastructure that provides efficient access to HSR stations; 4) urban design characteristics of HSR stations and their immediate vicinity; and 5) the importance of public-sector involvement.

The literature is in general consensus that HSR alone does not promote economic development. However, the potential for economic development exists if HSR is combined with other efforts to stimulate economic activity. Views differ as to whether HSR promotes the concentration of economic activity in the large metropolitan cities or whether it leads to its dispersion to regional cities. Literature cites evidence that dispersion is taking place in some instances, while concentration in others. These mixed findings indicate that HSR is not the only factor in producing economic growth.

Findings from the literature indicate that HSR stations need to be located near existing activity centers or at sites that are linked to city centers by good public transportation to be successful economically.

Land uses that support economic development associated with HSR stations fall under the following categories: business-related, residential-related, and tourist-related. Business-related land uses include offices, conference centers, and meeting facilities. The literature often identifies that service- and information-based businesses are the primary market for business-related HSR

Conclusion

users. Therefore, office land use should cater to these users. However, some studies caution that offices can be so attractive to developers that other land uses may be pushed out, possibly leading to a sterile environment. There is evidence that conference centers near HSR stations are being well utilized by business people, including when these facilities are located in intermediate cities (between two larger cities). The literature supports meeting facilities and other temporary or rented forms of office space near HSR stations, due to demand from consultants and information-based professionals who can work anywhere.

While the literature generally supports the notion that HSR has increased residential settlement to regional cities with HSR stations, the literature is limited on how this translates into specific housing types around the HSR stations themselves. However, one detailed study concludes that there needs to be a mix of high-quality rental and for-sale housing at HSR stations.

The literature finds a strong correlation between tourism and HSR usage. Therefore, tourist-related land uses are important at HSR stations. According to the literature, specific land uses tied to tourism include retail and entertainment complexes, cultural attractions (i.e., historical attractions, museums, etc.), and hotels. In planning for hotels, the amount of space required needs to be carefully studied, as findings show overnight visits by tourists are not as necessary as they once were due to the increased feasibility of taking day trips via HSR.

The literature widely accepts that excellent connecting transportation infrastructure is necessary for the success of HSR and associated TOD. The wide catchment of HSR stations by nature include large areas of low-density development that are poorly serviced by public transportation systems. Therefore, efficient road access to HSR stations is important. Ample parking facilities at HSR stations are also critical for access. However, the literature cautions that while automobile access is critical, the infrastructure associated with automobiles must be limited so it does not dominate the TOD environment.

The importance of robust regional rail and local transit systems that connect metropolitan areas and surrounding regions to HSR stations is a widely held view. The literature also discusses bicycle access to transit stations in a general sense, but not specifically with regard to HSR stations. However, one study advocates for bicycle parking facilities at HSR station. Furthermore, pedestrian networks are emphasized for TOD generally, but the view of its importance at HSR stations is not well documented. In total, the literature concludes that balanced, multimodal access from both dense urban environments and low-density suburban and rural environments to HSR stations is necessary.

The literature consistently identifies the inherent tension between the place and node functions of TOD. Much of this discussion is related to TOD generally, but some sources connect the place versus node tension directly to HSR station areas. In fact, due to the need for parking and roads associated with the wide catchment area of HSR, this tension can be exacerbated at TOD adjacent to HSR stations. The place function often loses out to the node function because transit agencies are typically motivated to increase ridership by providing large amounts of parking. Therefore, the place function must be a focus of planners. Place functions are often at odds with developers as well, who generally prefer large blocks, whereas small blocks are identified in the literature as

an important place attribute. Housing is also pertinent to the place function, in that it should not be placed immediately adjacent to the station to avoid nuisance, generally from noise.

Much of the literature discusses how to plan the node functions efficiently, and in a way that mitigates its impacts on the place function. Vertical station design, which uses less land than a horizontal station layout, is a well supported design attribute. Other design attributes to support the place function include direct access ramps from primary automobile routes to HSR parking structures (so as to prevent automobiles from inundating local streets) and tunnels for both HSR tracks and automobile access.

Finally the importance of public-sector involvement is unanimous in the literature. Conclusions consistently point to the need for early involvement to provide vision and coordinate diverse interests. Visionary leadership is not enough, however. Local governments need to take a proactive role in not only doing a variety of formal planning studies and market research, but also to invest public funds in amenities, land assemblage, and incentives for developers. However, some literature concludes that good public-sector engagement is often a challenge, as local governments may not know how to do this well and may lack the financial resources necessary.

11.2 CONCLUSIONS – CASE STUDIES

Three case studies are documented in this research report: Lille, France; Zaragoza, Spain; and Kyoto, Japan. The main conclusions are summarized below.

The Lille, France case study documents general economic improvement related to HSR and the associated development, and the importance of public-sector leadership. According to the literature, the creation of a massive development in conjunction with a new HSR station was accomplished through high-levels of public-sector leadership, especially by Lille's mayor. The new HSR station (Lille Europe) and the surrounding Euralille development has raised the profile of the city, helped transform a decaying industrial-based economy into a service- and information-sector economy, and led to increases in tourism. As a result, the economic situation has generally improved in Lille.

There is some debate about how successful the office component of the Euralille development is based on rental rates, though the continued development of new office space, indicates an overall positive economic effect.

In contrast to the overall positive conclusions regarding the economic impacts of the Euralille development, the urban design of the development is viewed less favorably. According to some literature, the development creates a hostile environment for pedestrians. Indications also suggest that connecting mass transit services are underutilized, especially by office workers, which reinforces the importance of urban design that fully integrates the various elements of TOD.

The Zaragoza, Spain case study also documents heavy public-sector involvement as well as the usage of a large event of international significance to lay the foundation for development around a HSR station. As was the case with Lille, strong leadership from the city's mayor helped drive the planning of bold development. First, a new HSR station was opened in 2003. This was followed by the procurement of the Expo 2008 international event (the presence of the new HSR station

Conclusion

may have helped Zaragoza compete more effectively for Expo 2008). Following Expo 2008, two major mixed-use developments were pursued in the vicinity of the new HSR station with aggressive public-sector involvement: the Milla Digital and the reuse of buildings from the Expo 2008 for a business center.

The land use mix contained in the Milla Digital plans demonstrates a high awareness of the types of land uses that are synergistic with HSR. The focus on the information economy and providing services, such as temporary and flexible office spaces and hotels oriented toward the business traveler, indicate sophisticated planning that mirrors the lessons learned from the literature. The Expo 2008 site focuses on offices with a mix of other land uses. The direct economic benefits of these developments are not clear yet. However, the land uses being planned are generally consistent with those shown in the literature review to promote economic activity.

Convenient rail access between the HSR station and the city center is lacking, though this may be remedied in the near future. Despite this lack of good access, the aggressive and ongoing participation of public officials to create a new HSR station, followed by two significant developments in the vicinity of the HSR station will likely prove to be a good economic catalyst.

The Kyoto, Japan, case study exemplifies the potential for significant TOD to be contained within HSR station complexes. The inclusion of private railway companies in the real estate aspect of the Kyoto's HSR station (i.e. Kyoto Station) has led to high-levels of development within the station complex itself. Kyoto Station is an example of how a private entity can approach development holistically to make the station itself a real destination. Land uses at the station include several food courts, a game center, department stores, various travel agencies, a cinema, a museum, exhibition venues, parking, etc. Other attractions include an observation deck and an aerial skywalk. The massive amount of development at Kyoto Station and the resultant success in increasing tourism activity is an excellent example of successful TOD within a HSR station. The Kyoto Station example also demonstrates that involving private developers can benefit the station (and the surrounding city) economically.

11.3 CONCLUSIONS – FRESNO

Fresno's downtown area has tremendous opportunity to maximize the HSR station for economic development. An oversupply of existing office space (likely to keep rents low), significant amounts of vacant and underutilized land ideal for TOD, numerous historic sites, and a large convention and entertainment center will likely attract new businesses to downtown Fresno. There is also potential for the revitalization of the Chinatown neighborhood business district. An extensive system of pedestrian space, including Fulton Mall, is present downtown as well. Finally, there is efficient freeway access to the HSR station site.

Challenges remain, including homeless shelters and services located on prime land for TOD, a large oversupply of office space that needs to be filled, struggling museums, inadequate water supply and public transportation infrastructure, and the UPRR ROW. All these challenges could depress TOD.

To meet the challenges and exploit the opportunities, the City of Fresno has a good foundation of existing planning documents, which contain the conceptual framework for the transformation of

their urban area, especially downtown, into multiple TODs. The City of Fresno is also aggressively developing new plans (including a specific plan), related to both TOD and HSR, which focus on high-density centers and corridors built around an extensive BRT system. The area of weakness in supporting TOD is the regional transportation planning process, which has yet to commit high-levels of funding for the creation of a robust public transportation system. There is some indication this may change due to state legislation. Overall, Fresno is showing the type of public-sector leadership in the area of planning that will give it a good opportunity to leverage the HSR station to maximize economic development.

11.4 CONCLUSIONS – BAKERSFIELD

Bakersfield has tremendous opportunity for TOD due to large areas of industrial land in the vicinity of the HSR station site. The newly opened Mill Creek Linear Park also provides an asset that has the potential to connect the station area to other areas of downtown already undergoing revitalization. Bakersfield also has historic assets that can be further exploited. Bakersfield's proximity to Los Angeles also provides opportunity to tie the economies of the two regions closer together, which would greatly benefit Bakersfield.

One challenge Bakersfield faces is that existing assets are spread out from one another in the downtown area. Much planning needs to be done to connect these assets. Furthermore, Bakersfield's geographical location prevents it from being a gateway city to the numerous national parks and other attractions in the Sierra Nevadas mountain range. Therefore, Bakersfield will have to strive to become a destination itself.

In terms of planning, the Bakersfield region conducted extensive study early in the development of the HSR system on topics such as where to place the HSR station in downtown and initial concepts for TOD around the station. This foresight led the Authority to adopt the region's preferred HSR station site, just south of Truxtun Avenue at the Amtrak Station. A preliminary report related to the update of the general plan indicates that the City of Bakersfield is considering land use changes that will likely lead to land uses supportive of HSR. Furthermore, the general plan update process will resume in early 2011 and likely focus on strengthening the urban "centers" concept and further pursue opportunities for TOD in downtown and around the HSR station. Finally, conceptual planning for the HSR station area is being initiated that will include marketing and intermodal studies and the development of land use concepts, another indication that the City of Bakersfield is ramping up efforts to maximize the economic potential of the HSR station.

Redevelopment activities are serving as a catalyst for downtown revitalization, which will help lay a good foundation for TOD when HSR arrives. The Mill Creek Linear Park is creating a north-south spine of revitalization which is already leading to numerous developments on adjacent parcels.

In terms of transportation, the Centennial Corridor and Westside Parkway highway projects are likely to facilitate access to the HSR station from western Bakersfield. However, an extensive beltway system is also being planned that bypasses downtown Bakersfield. These proposed beltways, if built, are likely to draw funds away from investment in public transportation

Conclusion

improvements, which are needed to support HSR. These outer beltways are also likely to draw economic activity away from the downtown in favor of sprawl development, possibly reducing the economic impact of the HSR station. It appears that public transportation is given low priority in the Bakersfield region at this time, as no significant funding is programmed for investments in high-quality transit. This situation does not bode well for providing balanced, multimodal connections to the HSR station.

Overall, Bakersfield has a good foundation of planning to build on. Furthermore, current planning efforts getting underway indicate a focus on the HSR station area and TOD. However, the lack of investment in public transportation in favor of an extensive highway system will likely lead to development that will drain economic activity away from downtown and the HSR station. To really embrace the benefits HSR has to offer, a rebalancing of the transportation infrastructure will be necessary.

11.5 RELEVANCE TO THE PLANNING PROFESSION

In addition to contributing recommendations for Fresno and Bakersfield, this research has relevance to the entire planning profession. Currently, the topic of TOD is a major focus of the urban planning profession. Various models of TOD have been established, most of which are associated with development at transit stations that serve a single metropolitan area. HSR by nature is an inter-city service. Therefore, TOD models need to be developed that focus on land uses, transportation connections, and urban design that support HSR, especially since HSR is being rapidly implemented around the world. This research report will contribute to the development of such models.

11.6 SUGGESTIONS FOR FURTHER STUDY

Further study on the topic of the economic effects of TOD around HSR stations would be very useful. While there is some literature on this topic, it could be much more extensive. Furthermore, there are hundreds of case studies that could be performed which examine development patterns around individual HSR stations. Currently, there are very few detailed case studies examining this topic.

The relative newness of HSR suggests that findings and conclusions may shift over time as the HSR mode of travel becomes more established. It is likely that businesses and other users will continue to learn to use HSR in different ways. It also takes many years to bring TOD to fruition, and given the fact that many HSR systems are not that old (aside from the system in Japan and to a lesser extent the one in France), new experiences and data will become more available as time goes on.

In California, it is very timely to consider additional studies that would assess the approaches to planning for TOD in other cities with planned HSR stations, and to determine how such planning impacts the potential for economic development. Cities in other states with emerging HSR systems, such as Florida, should also be considered for study.

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Glossary of Acronyms

2007 Bakersfield RTP	<i>2007 Destination 2030: Regional Transportation Plan</i>
2011 Bakersfield RTP	<i>2011 Regional Transportation Plan</i>
2011 Fresno RTP	<i>2011 Regional Transportation Plan: Long-Range Transportation Vision for the Fresno County Region for the Years 2010 to 2035</i>
2025 FGP	<i>2025 Fresno General Plan</i>
ARRA	American Recovery and Reinvestment Act
AVE	Alta Velocidad Española (i.e. Spanish high-speed rail system)
Authority	California High-Speed Rail Authority
BART	Bay Area Rapid Transit
BNSF	Burlington Northern Santa Fe Railway Company
BRT	Bus Rapid Transit
BSA	Bakersfield Study Area
CCP	<i>Central Community Plan</i>
DNCP	<i>Downtown Neighborhoods Community Plan</i>
DU	Dwelling Units
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
Expo 2008	The International Exposition of Zaragoza 2008
FLSP	<i>Fresno/Lowell Specific Plan</i>
GA	Gross Acre
FAX	Fresno Area Express
FCSP	<i>Fulton Corridor Specific Plan</i>
FRA	Federal Railroad Administration
FRDA	Redevelopment Agency of the City of Fresno
FSA	Fresno Study Area
HSR	High-Speed Rail
HST	High-Speed Train
ICE	Intercity-Express (i.e. German high-speed rail system)
JR Central	Central Japan Railway Company

Glossary of Acronyms

JR West	West Japan Railway Company
<i>KRBP</i>	<i>Kern Regional Blueprint Program: Final Report</i>
LUTD	Land Use/Transportation Diagram
<i>MBGP</i>	<i>Metropolitan Bakersfield General Plan</i>
MCLP	Mill Creek Linear Park
<i>Program-Level EIR/EIS</i>	<i>Final Program Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) for the proposed California High-Speed Train System - Volume 1: Report</i>
RATCC	Rabobank Arena Theater and Convention Center
ROW	Right-of-Way
SNCF	Société Nationale des Chemins de fer Français
SR	State Route
SJV	San Joaquin Valley
TGV	Train à Grande Vitesse (i.e. French high-speed rail system)
TOD	Transit-Oriented Development
UPRR	Union Pacific Railroad