

**CALIFORNIA PATH PROGRAM  
INSTITUTE OF TRANSPORTATION STUDIES  
UNIVERSITY OF CALIFORNIA, BERKELEY**

# **State and Federal Project Development Procedures for Bus Rapid Transit: Managing Differences and Reducing Implementation Delays**

**Mark A. Miller**

**California PATH Research Report  
UCB-ITS-PRR-2011-08**

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**State and Federal Project Development Procedures for  
Bus Rapid Transit: Managing Differences and  
Reducing Implementation Delays**

**REPORT prepared for California PATH  
by**

**Mark A. Miller**

**Final Report for Technical Agreement TA-65A0365**

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## **ABSTRACT**

This report documents an investigation into the transportation project development process in the context of the implementation of bus rapid transit systems on the State Highway System as well as being part of the Federal New Starts Project Planning and Development Program. This setting brings together two traditionally separate types of transportation implementation projects: the traditional highway construction project and implementation of a public transportation project. The focus of the project was on two sometimes differing Project Development Procedures – State and Federal – both of which must at times be followed. Because of such differences, conflicts can arise and contribute to the use of resources that might not otherwise be employed potentially resulting in implementation delays. An investigation of site-specific bus rapid transit projects both within California and out-of-state was conducted, which led to the development of recommendations to help mitigate the impact of having to follow multiple sets of Project Development Procedures for a single bus rapid transit project and to help implement it more efficiently.

Key Words: bus rapid transit, implementation, project development process, procedures



## **EXECUTIVE SUMMARY**

This document constitutes the final report for PATH Project Technical Agreement TA-65A0365-“Integrated Allowances for BRT Projects in the Project Development Procedures Manual”. It details an investigation into the transportation project development process in the context of the implementation of bus rapid transit (BRT) systems on the State Highway System (SHS) as well as such systems being part of the Federal New Starts Project Planning and Development Program. In this context, two traditionally separate types of transportation implementation projects come together under a single inquiry: the traditional highway construction project and implementation of a public transportation project. The focus of this research was on two sometimes differing Project Development Procedures (PDP) – State and Federal – both of which must at times be followed, when respectively, the BRT project is on the SHS and the project is receiving funding from the New Starts Program. Because of such differences in these two sets of PDPs, conflicts can arise and contribute to the use of resources that might not otherwise be employed potentially resulting in implementation delays.

Initially, a review of PDP information sources and a comparison of the two types of PDPs – highway-focused and transit-focused were conducted. Then an examination was made of the two key factors determining which set of PDPs is used, that is, whether the BRT project is located along the SHS and whether the implementing agency has applied for and/or been approved for federal financial support, and of the likelihood that implementation delay will result from the presence or absence of these factors.

An investigation of 16 bus rapid transit projects both within California (12 projects) and out-of-state (4 projects) was conducted covering the following regions of California:

- Sacramento metropolitan area
- San Francisco Bay Area
- San Diego metropolitan area
- Los Angeles metropolitan area
- Monterey-San Luis Obispo area

and the following out-of-state locations:

- Roaring Fork Valley, Colorado
- Cleveland, Ohio
- Eugene-Springfield, Oregon

- Austin, Texas

In twelve of the 16 BRT projects examined, there were no implementation delays. Only four such projects experienced implementation delays and three of these had delays due to conflicts arising from the use of both State and Federal PDPs. There are numerous factors that can play an influential role in the type of issues and extent of time delays experienced by BRT implementing agencies in the context of having to follow both State and Federal PDPs. Such factors focus on institutional and organizational relationships among stakeholders – especially between State DOTs and the USDOT – and the nature of the BRT project on the State Highway System, and include the following:

- Number of municipalities along the BRT route having jurisdictional authority over the BRT project.
- Relationships among organizational and agency stakeholders and the level of coordination among them
- Specific agency (and its type) with project approval and implementation authority
- Degree of common language used in the PDPs and potential for multiple interpretation of terms
- Extent of impact of BRT project on the SHS, e.g., queue lane or traffic signal only; full or partial removal of a travel lane
- Level of financial commitment, especially extent of State funding that can serve as an incentive to participate and see the project to a successful conclusion
- Experience and familiarity of State DOT and implementing agency with each other's culture and way of conducting business
- Federal view of the State's role: equal partner or just one of the locals
- Issues and potential implementation delays are more likely to occur in certain PDP steps than others, e.g., early in the PDP, there is less likelihood of delays.

Moreover, among the 12 projects with no delays, the BRT routes for four of them are on the SHS in their respective States and the projects have either applied for or have already received federal funding. One of these four projects is at a relatively early implementation stage and so has simply not yet experienced delays; the State DOT for another of these four projects has had only limited participation thus far because of resource constraints; for the remaining two of these four projects, the relevant State DOTs have been quite flexible in their project oversight and have

permitted the FTA-based set of project development procedures to have priority over their own respective State-based set of procedures.

The findings from the site-specific investigations led to the development of recommendations to help mitigate the impact of having to follow two sets of Project Development Procedures for a single bus rapid transit project and to help implement it more efficiently. Such recommendations include the following:

- More direct and improved communications among project partners, especially between the relevant State DOT and Federal, representatives throughout the course of the project
- Implementing agency needs to assume a leadership role in seeking FTA and State DOT guidance to help preclude issues from coming up
- Examine each set of PDPs at the start of the project with State DOT and FTA to
  - identify similarities and differences
  - determine where compromises can and cannot be made
  - determine who has priority under what circumstances at what procedural steps
  - recognize and resolve differences among terms and language used vis-à-vis the transit vs. highway contexts
  - identify steps in the (State and Federal) PDPs where merging of tasks between these PDPs may be allowed as part of a plan to allow more flexibility in carrying out the PDPs; this will depend on the unique characteristics of each individual BRT Project and the extent of the impact of each BRT Project on the SHS.
- Become aware and take advantage of project-specific opportunities



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## **1.0 PROJECT OVERVIEW**

This report constitutes the final deliverable for PATH Project Technical Agreement TA-65A0365 — “Integrated Allowances for BRT Projects in the Project Development Procedures Manual”. The project investigated the transportation project development process and the two sets of differing procedures that exist and may have to be followed in the context of the same project, in particular for the implementation of bus rapid transit (BRT) systems on the California State Highway System (SHS). In this context, two traditionally separate types of transportation projects converge under a single implementation: the traditional highway construction project and a public transportation project.

When a bus rapid transit project is implemented on the California SHS the Project Development Procedures Manual – a document that is developed and maintained by the Office of State Project Development Procedures and Quality Improvement in the Headquarters Division of Design (DOD) – provides the necessary “guidance for project development on State Highway System projects” (1). However, for certain BRT projects such as when a bus lane will be constructed, federal funding may be applied for under the Federal Transit Administration’s (FTA) New Starts Project Planning and Development Program, which is the federal government’s primary financial resource for supporting locally-planned, implemented, and operated transit “guideway” capital investments, including heavy, light, and commuter rail systems as well as bus rapid transit systems. In this case another set of project development procedures must be followed.

These two sets of project development procedures have steps in common as well as differences, which become very important when both sets must be adhered to. Moreover, steps that are common to both sets of procedures can differ in the order in which they need to be completed in the entire sequence of steps. Conflicts can arise that contribute to the use of resources that might not otherwise be employed potentially resulting in time delays in project implementation. In this report we document our investigation into such conflicts and delays and develop recommendations for resolving such conflicts. The rest of this section discusses the motivation and objectives of this project and a summary of the contents for the remainder of this report.

## 1.1 Motivation

The California Department of Transportation (Caltrans) adopted in 2007 a Director's Policy (DP-27) entitled "Bus Rapid Transit Implementation Support" a policy supporting implementation of bus rapid transit systems on the California State Highway System (2). In particular, this policy begins with the following statement:

*"The California Department of Transportation (Department) recognizes and supports the concept and implementation of Bus Rapid Transit (BRT) as a potentially cost-effective strategy to maximize people throughput (emphasizing the movement of people, not just vehicles), reduce traveler delay, increase capacity, and foster energy savings on the California State Highway System (SHS), as well as on conventional highways. The Department will work closely with local jurisdictions, regional transportation planning agencies, transit operators, and other stakeholders to plan, develop, implement, and advocate for BRT systems."*

In 2008, Caltrans issued a Deputy Directive (DD-98) entitled "Integrating Bus Rapid Transit into State Facilities" (3), which reads as follows:

*"The California Department of Transportation (Department) supports the integration of Bus Rapid Transit (BRT) projects and operations on the California State Highway System (SHS) where most effective, through partnership with BRT stakeholders. Integrating BRT support elements on State facilities where appropriate, has the potential to increase the "person-throughput," reduce the rate of congestion for all highway users, mitigate pollution, reduce greenhouse gas emissions, and improve goods movement.*

*The Department ensures that relevant procedures, standards, and guidance include direction that addresses BRT during the preliminary planning concept stages, and throughout the formal stages of planning, design, construction, operation, and maintenance of its facilities and properties.*

*Costs associated with integrating BRT into standard Department processes, (e.g., planning, design, construction, operations, and maintenance), are considered costs of delivering California's transportation system."*

Based on and consistent with DP-27 and DD-98, Caltrans expressed a desire for guidance in dealing with differences in BRT project development procedures – Caltrans and FTA – that can contribute to delays in BRT project implementation.

## **1.2 Objectives**

The overall objectives of this project are to identify the project development procedures from both Caltrans and FTA, document their similarities and differences, and develop recommendations to assist transit agencies and Caltrans in reducing potential BRT project implementation delays on California State Highways that can arise from such differences between transit-and highway-focused project development procedures.

## **1.3 Contents of the Report**

This is the first of four sections. Section 2 provides a discussion of the methodological approach used in performing this investigation; a discussion of the investigation's findings is provided in Section 3, followed by recommendations and conclusions in Sections 4 and 5, respectively.



## 2.0 METHODOLOGY

In this section we present the methodological approach used in our investigation of the two sets of transportation project development procedures.

### 2.1 Identification and Review of Project Development Procedures Information Sources

The primary information sources used to understand the set of procedures for the construction of a transportation project on the California State Highway System are the following:

- California Project Development Procedures Manual (1)
- “How Caltrans Builds Projects” booklet published by the Caltrans Office of Project Development Procedures, which provides an overview of the Caltrans project delivery process for projects that will “improve or maintain the State Highway System (SHS) including the Interstate System” (4).
- Online tutorial available at [www.dot.ca.gov/hq/oppd/pdp/index.htm](http://www.dot.ca.gov/hq/oppd/pdp/index.htm) (5).

The “How Caltrans Builds Projects” booklet and the online tutorial are much simplified versions of the California Project Development Procedures Manual, which provides the functional framework of policies and procedures based on a task and sub-task structure.

The primary information sources examined to understand the set of procedures for the construction of a transit project, in particular, a bus rapid transit system project, when federal funding has been applied for and approved under the FTA’s New Starts Project Planning and Development Program, consist mainly of numerous *fact sheets* that are listed as follows:

- Federal Transit Administration, “FTA Major Capital Transit Investment Fact Sheet – New Starts Project Development”, FTA Office of Planning and Environment and Office of Program Management (6).
- Federal Transit Administration, “FTA Major Capital Transit Investment Fact Sheet – Alternatives Analysis”, FTA Office of Planning and Environment and Office of Program Management (6).

- Federal Transit Administration, “FTA Major Capital Transit Investment Fact Sheet – Preliminary Engineering”, FTA Office of Planning and Environment and Office of Program Management (6).
- Federal Transit Administration, “FTA Major Capital Transit Investment Fact Sheet – Final Design”, FTA Office of Planning and Environment and Office of Program Management (6).
- Federal Transit Administration, “Small Starts Fact Sheet”, Section 5309 Capital Investment Grant Program, March 2007 (7).
- Federal Transit Administration, “Very Small Starts Fact sheet”, Section 5309 Capital Investment Grant Program, February 2007 (7).

Additional information resources that assisted in understanding the BRT project development process include the following three reports, which are briefly described in Table 1.

- Levinson, H.S., et al., “TCRP Report 90 – Bus Rapid Transit Volume 2: Implementation Guidelines”, Transit Cooperative Research Program, Transportation Research Board, Washington, D.C., 2003.
- Diaz, R.B., and Hinebaugh, D., “Characteristics of Bus Rapid Transit for Decision-Making (CBRT), Federal Transit Administration, FTA-FL-26-7109-2009.1, February 2009.
- Kittelson & Associates, Inc., et al., “TCRP Report 118 – Bus Rapid Transit Practitioner’s Guide”, Transit Cooperative Research Program, Transportation Research Board, Washington, D.C., 2007.



**Table 1** Bus Rapid Transit Project Development Procedures Information Sources

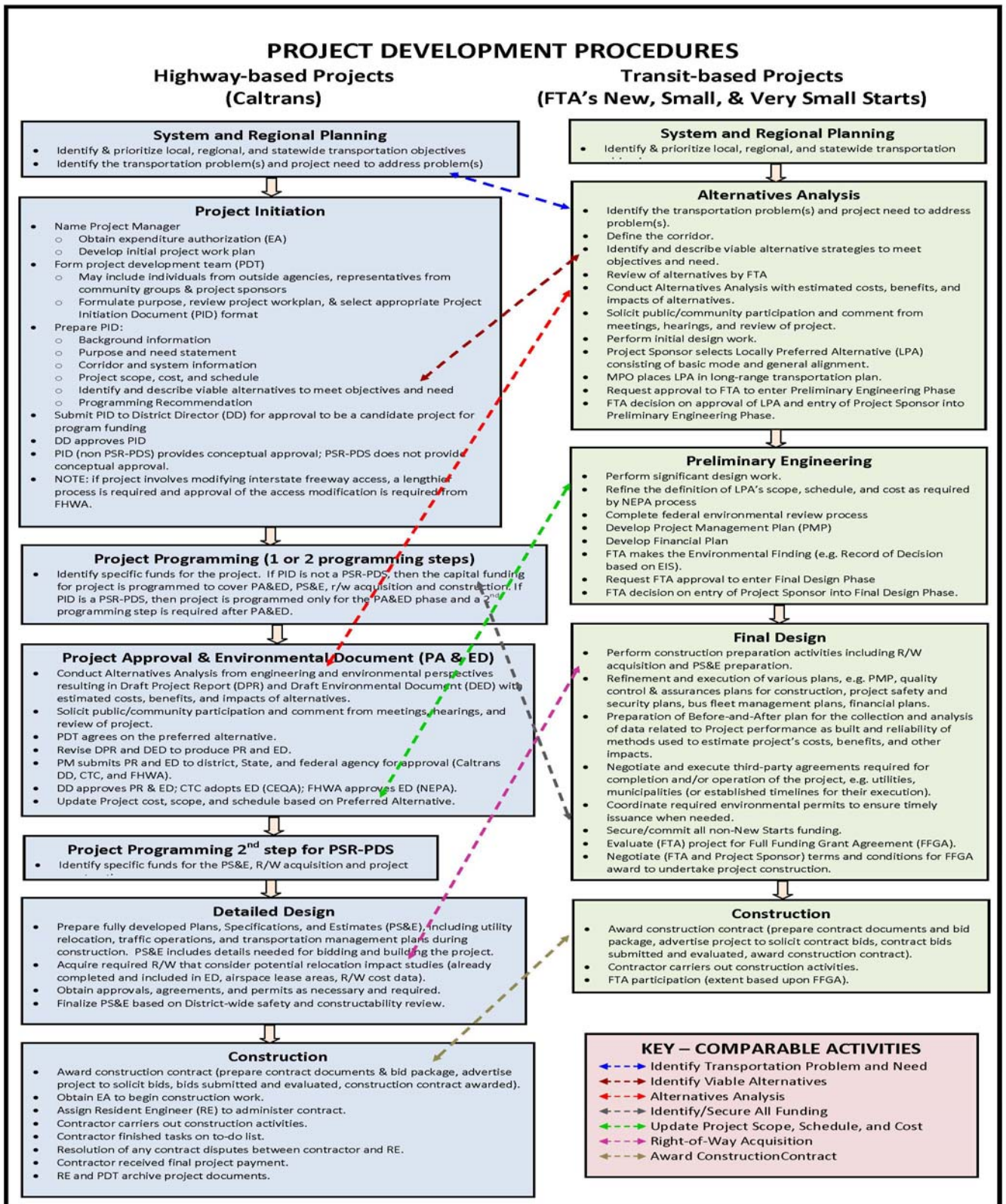
Title	Description
TCRP Report 90: <i>Bus Rapid Transit – Implementation Guidelines</i>	This report presents planning and implementation guidelines for bus rapid transit (BRT), which are based on a literature review and an analysis of 26 case study cities in and outside the United States. The guidelines cover the main components of BRT—running ways, stations, traffic controls, vehicles, intelligent transportation systems (ITSs), bus operations, fare collection and marketing, and implementation.
TCRP Report 118: <i>Bus Rapid Transit Practitioner’s Guide</i>	A report providing information on the costs, impacts, and effectiveness of implementing bus rapid transit (BRT) components. It includes practical information that can be readily used by transit professionals and policy makers in planning and decision making related to implementing different components of BRT systems.
FTA Report FTA-FL-26-7109.2009.1: <i>Characteristics of Bus Rapid Transit for Decision Making</i> 2009 Update	A reference tool intended for transportation planners and decision makers and provides information on BRT systems including the seven major elements of BRT together with their respective features and attributes; BRT system performance; and benefits of BRT systems.

## 2.2 Comparison of Transit- and Highway-Based Project Development Procedures

After reviewing the documents, reports, and online material listed in Section 2.1, we constructed side-by-side flow charts describing in detail the project development procedures (PDP) for both highway-based and transit-based projects. These flow charts are shown in Figure 1. The highway-based flowchart is based on Caltrans’ project development procedures and the transit-based flowchart is based on FTA’s project development procedures.

The transit-based PDP flowchart in Figure 1 is based on a BRT system implementation that is receiving funding through FTA’s New Starts Project Planning and Development Program, which may be classified in one of the following three ways: New Starts, Small Starts, or Very Small Starts. The main difference among these three types of transit projects is their total cost. If the total project cost is less than \$250 million with no greater than \$75 million in requested Section 5309 Capital Investment Grant funding, then the project may be classified as a Small Start. If the total project cost is less than \$50 million then it may be classified as a Very Small Start. There are additional criteria that must be satisfied in order to be classified either as a New, Small, or Very Small Start project, which can be found in (7). In general, for Small or Very Small Starts projects, the FTA criteria to qualify are less stringent than for New Starts projects. Moreover, the PDP for such projects is simpler and more flexible than for New Starts projects.

From Figure 1, we observe that both sets of procedures begin and end at the same highlighted phase, that is, **Systems and Regional Planning** and **Construction**, respectively. There is also a high level overall of similarities contained within each procedure phase. There are instances in which the same individual step or action occurs in the same procedural phase. For example, “Identify & prioritize local, regional, and statewide transportation objectives” is in **Systems and Regional Planning** for both flowcharts and “Contractor carries out construction activities” is contained in the **Construction** phase, again for each of the flow charts. However, there are also instances in which the same individual step or action occurs in different procedural phases. Figure 1 shows numerous such examples indicated by colored arrows connecting each instance of the same individual step or action between each set of PDPs. For example, “Identify the transportation problem(s) and project need to address problem(s)” is in **Systems and Regional Planning** phase for highway-based projects while it is in the **Alternatives Analysis** phase for transit-based projects, indicated by the blue arrow. There are also Caltrans-specific and FTA-specific individual steps or actions. For example, there are steps within the FTA-based PDP where FTA approval is required to authorize transition of the project sponsor or implementer from the **Alternatives Analysis** phase to the **Preliminary Engineering** phase and from **Preliminary Engineering** to the **Final Design** phase. There are also rules or practices established by usage that govern the order of implementing individual steps and phases. For example, according to the FTA-based PDP, the Alternatives Analysis and resulting selection of the Locally Preferred Alternative (LPA) are conducted immediately after the **Systems and Regional Planning** phase near the start of the PDP; whereas for the Caltrans-based PDP, the Alternatives Analysis and subsequent LPA selection are conducted later on in the PDP during the **Project Approval & Environmental Document (PA & ED)** phase. Finally, the two sets of PDPs sometimes use the same term but not associated with the exact same meaning or interpretation and this can contribute to delay in the implementation of the BRT project. For example, *preliminary engineering* is conducted during the **Project Approval & Environmental Document (PA & ED)** phase of the highway-based PDP and its activities include the alternatives analysis as well as “surveys and mapping, traffic forecasts and modeling, value analysis, hydraulic



**Figure 1** Flowcharts for Caltrans and FTA Sets of Project Development Procedures

studies, right-of-way and utilities need/impact assessments, railroad issues, and materials/geotechnical information studies.” (4). For transit-focused projects the *preliminary engineering* phase consists of “identification of all environmental impacts and making adequate provision for their mitigation in accordance with NEPA” and the “design of all major or critical project elements to the level that no significant unknown impacts relative to their costs or schedule will result.” (6).

### **2.3 The Impacts of Key Factors Determining which Project Development Procedures are Used**

There are two primary factors determining which PDPs are followed:

- Whether the bus rapid transit project is located along the State Highway System
- Whether the bus rapid transit project implementing agency (transit agency, MPO, transportation authority) has applied and been approved for federal financial support for at least partial funding of its project.

Each of these two factors has two possible values, essentially either “Yes” or “No”, producing a total of four possible outcome combinations to consider. The likely impact on potential delay in the implementation of a bus rapid transit system for each of these four outcomes is described in Table 2. Clearly, delays are more likely when a BRT project is both on the State Highway System and receiving federal funding and least likely when a BRT project is neither on the State Highway System nor receiving federal funding. When a BRT project is not on the State Highway System yet it is receiving federal funding, the implementing agency such as the relevant transit agency or metropolitan planning organization only has to follow the FTA set of project development procedures and process-related delays are not likely. When a BRT project is on the SHS but receives no federal funding, the implementing agency could still experience delays resulting from the transit agency’s degree of familiarity and knowledge of the State PDP.

**Table 2** Following Project Development Procedures: Impact on BRT Project Implementation Delay

<b>State Highway System</b>	<b>Federal Funding</b>	
	<b>Yes</b>	<b>No</b>
<b>Yes</b>	Can and sometimes do experience delays because the transit agency must conform to two project development processes that have differences in the content and order of steps, and/or the timing for completion of steps.	Could still experience delays because the transit agency has to follow the Caltrans highway-based PDP and though there wouldn't be any process-related delays due to conformance conflicts between the two PDPs, there could still be delays due to the transit agency's familiarity with and knowledge of the highway-based PDP.
<b>No</b>	Has to conform only to FTA transit-related PDP. Level of detail and how streamlined the PDP depends on whether project is part of New Starts, Small Starts, or Very Small Starts Program. Process-related delays are unlikely.	Transit agencies will still use some form of generic PDP and likely base it on the known FTA PDP (as opposed to the Caltrans highway-based PDP) yet they don't have to worry about being compliant with FTA's rules and guidelines. Delays are unlikely.

## 2.4 Performing Site-Specific Assessments of Bus Rapid Transit System Project Development Procedures

We examined the specific project development procedures used by BRT projects both within California and outside the State by conducting site-specific assessments of these projects.

### 2.4.1 California-Based Bus Rapid Transit Projects

After identifying applicable BRT projects in California based on initial discussions with this study's Project Advisory Group, appropriate points of contact at relevant implementing agencies were contacted and follow-up discussions were held through phone interviews.<sup>1</sup> Areas of the State where we investigated are the following:

- Sacramento metropolitan area
- San Francisco Bay Area
- San Diego metropolitan area

<sup>1</sup> In one case no call backs were received after repeated calling attempts; in another case, no points of contact were ever identified.

- Los Angeles metropolitan area
- Monterey-San Luis Obispo area

#### **2.4.2 Bus Rapid Transit Projects Outside California**

For BRT projects outside California, initially we focused on identifying those projects that have either applied for and/or have already received federal funding through FTA's New Starts Program<sup>2</sup>. We examined each of the past Annual Reports on New Starts going back to FY 2000, which are located at the following website: [http://www.fta.dot.gov/planning/newstarts/planning\\_environment\\_2618.html](http://www.fta.dot.gov/planning/newstarts/planning_environment_2618.html)

Each report contains a list of the projects recommended for funding in the President's budget for that specific year. Many of the recent reports (2004 and later) include a "project profile" for each project evaluated and rated by FTA. The project profile normally identified the project sponsor and contained a description of the project.

After reviewing these Annual Reports and in some cases investigating further using Google Maps to accurately help identify actual State Routes, we identified the following transit agencies that either have already or are in the process of implementing a bus rapid transit project within their operational boundaries and that have been recommended for or have already received federal funding and are on the State Highway System in their respective State:

- Roaring Fork Valley, Colorado (Roaring Fork Valley Transit)
- Cleveland, Ohio (Greater Cleveland Regional Transit Authority)
- Eugene-Springfield, Oregon (Lane Transit District)
- Austin, Texas (Capital Metro Transit)
- Seattle, Washington (King County Metro Transit)

Findings from the site-specific assessments are presented in the next section of this report.

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<sup>2</sup> FTA's New Starts website is: [http://www.fta.dot.gov/planning/planning\\_environment\\_5221.html](http://www.fta.dot.gov/planning/planning_environment_5221.html)

### **3.0 SITE-SPECIFIC ASSESSMENTS OF PROJECT DEVELOPMENT PROCEDURES FOR BUS RAPID TRANSIT IMPLEMENTATION**

In this section we present the findings of our investigation into the use of potentially multiple project development procedures for BRT project implementation.

#### **3.1 Summary of Overall Site-Specific Findings**

In this section we summarize the results on a case-by-case basis of the investigation of both in-State and out-of-State bus rapid transit projects with respect to whether they were on the SHS in their respective state and whether they applied for and/or already received federal funding support from FTA's New Starts (Small or Very Small Starts) Program. For in-state BRT projects, we did not know a priori whether they were on the California SHS, but discovered this information during the investigation. For the out-of-state projects, we selected those systems whose routes were already known to be on the SHS in their respective state and have already received federal funding or at least have applied for it.

*SF Bay Area East Bay BRT / AC Transit* — The route of the project travels along Telegraph Ave. and International Blvd./14<sup>th</sup> Street on SR 185 for most of its length through the cities of Berkeley, Oakland, and San Leandro, which have final project approval authority even though AC Transit is the lead implementing agency. The project's multi-jurisdictional nature has delayed the selection of the Local Preferred Alternative. There have been instances in which the order of the same steps in satisfying both the Caltrans PDP and the Federal PDP have differed, which has contributed to project implementation delays. AC Transit is part of the Federal Small Starts funding program and is receiving \$75M in federal funding. FTA is currently reviewing AC Transit's Final Environmental Impact Statement.

*SF Bay Area Van Ness Ave. BRT / SF County Transportation Authority (SFCTA)* – The project has been awarded \$15 M in Small Starts funding from FTA, although it has received only \$400 K in FY10 to do environmental and 30% Design level work. The remainder of the federal funds is expected to be forthcoming in FY11. SFCTA is, in fact, eligible for up to \$75 M. The project is also locally funded through Proposition K but

thus far there are no California State funds though SFCTA is considering State Highway Operations and Protection Program (SHOPP) funding for street construction. No delays due to these multiple funding sources were reported. SFCTA is following both Caltrans and FTA PDPs and currently the administrative draft of the EIR/EIS is awaiting Caltrans approval after which this document will be available for public comment and subsequently selection of the Locally Preferred Alternative. SFCTA has also drafted the PSR/PR and Design Exception Fact Sheets and will submit them to Caltrans for review and approval. Thus far there has not really been delays related to conflicts arising from following Caltrans and FTA PDPs; though other conflicts exist, e.g., between the city of San Francisco and the Caltrans Design Division over geometric design standards (street geometry). As the project progresses to later steps in the PDPs, other conflicts may arise. However, regarding the project's jurisdictional nature, essentially there is only one jurisdiction involved as SFCTA, the approving agency, is part of County government and the city of San Francisco is geographically equivalent to the county of San Francisco.

*SF Bay Area El Camino Real BRT / SC VTA* – The project is currently funded only with local funds (Measure A). Caltrans District 4 (D4) is not yet involved due to resource constraints; thus the Valley Transportation Authority (VTA) is not following Caltrans' PDP as VTA is waiting until State resources are secured to enable District 4 involvement. VTA is currently following the PDP modeled after FTA's PDP though it has remained consistent with Caltrans' PID, which has not been budgeted for this fiscal year (FY); however, as it is in the budget queue for the next FY the project remains uncertain as to its future.

*SF Bay Area Alum Rock BRT / SC VTA* – Alum Rock Avenue is part of the SHS (SR 130), but the City of San Jose and Caltrans D4 are in discussions for relinquishment from the State over this route, after which San Jose would have final authority and control over the route and Caltrans would have only a minor role. However, the BRT route will include bridge overcrossings to both I-680 and US 101 and VTA will still work together with D4 to minimize impacts and off-ramp signal adjustments. Caltrans D4 will provide design review for project oversight. Project funding is from local or State sources



(Measure A or Prop. 1B, respectively). VTA is generally following FTA's generic PDP model with steps similar to the following: Alternatives Analysis → Preliminary Engineering → Final Design → Construction (AA → PE → FD → C).

*Monterey Peninsula BRT / Monterey Salinas Transit (MST) District* – MST has received approximately \$3 M in federal funding as part of the Very Small Starts Program and so is following FTA's PDP. The BRT route traverses SR 1, crosses SR 218, and state-owned signals and shelter/bus stops are also involved in the project to which MST may want to make changes and add a signal priority system. For changes to state-owned signal facilities, an encroachment permit application has been submitted to Caltrans for approval. There have been project implementation delays; however, these have less to do with conflicts between the PDPs of both Caltrans and the FTA and more to do with differences of organizational culture between Caltrans and the MST district as well as lack of experience with implementing BRT at Caltrans District 5 (D5).

*San Diego Mid-City Rapid Bus / SANDAG* – The route of the Mid-City Rapid Bus is not on the State Highway System though it does cross over several freeways (I-15, I-805, and I-5) along its route on arterials in the City of San Diego including El Cajon and Park Boulevards. SANDAG does not have to follow Caltrans' PDP because the project's route is not on the SHS. The project is part of the federal Very Small Starts Program as \$20 M in federal funding has been allocated to this project and so SANDAG is following FTA's PDP: AA → PE → FD → C. As it is part of the Very Small Starts Program, FTA is more flexible in these procedures than for the New Starts Program. SANDAG is experiencing no delays in following the federal PDP.

*San Diego South Bay BRT / SANDAG* – The project is on freeways (SR94, I-805), toll road (SR125), and on arterials. There is currently no federal funding, only local sales tax funds. However, SANDAG is under discussion with FTA for an inline station add-on facility that would be associated with federal funding, though this is 7-10 years off. SANDAG does use Caltrans PDP, and has not yet experienced delays based on any unfamiliarity with following the Caltrans PDP.

*San Diego Escondido Breeze BRT / SANDAG* – This project is 100% locally funded and not on the SHS. It will be run by North County Transit District (NCTD) though it was developed by NCTD, SANDAG and the City of Escondido. The project’s development process has been modeled after a generic version of FTA’s PDP with steps similar to AA →PE→FD→C and is under construction.

*San Diego I-15 Corridor BRT / SANDAG* – Though it appears this project is on the SHS because of the I-15 Express Lane construction including the direct access ramps and the fact that BRT vehicles will operate on the Express Lanes, the BRT construction component only involves construction of BRT stations and purchase of BRT vehicles; and four of the five BRT stations are actually outside the SHS right-of-way. Nonetheless, Caltrans is a project partner that will review project design at various levels.

*LA metropolitan area Rapid 3 BRT / Big Blue Bus* – The system is on Lincoln Boulevard in Santa Monica and is part of the SHS. The BRT currently runs in mixed flow with little involvement from Caltrans District 7, which has not yet approved Big Blue Bus’ desired plan to convert the curbside parking lanes along the route to bus-only use during and AM and PM peak periods. Moreover, the City has not assumed jurisdiction over the right-of-way. Should the plan for peak period bus lanes be approved, then the Big Blue Bus will adhere to Caltrans’ PDP and would also need to follow the federal PDP should it also apply and be approved for federal funds.

*Sacramento metropolitan area I-80/ Placer County-Watt Ave. to SR65 / Placer County Transportation Planning Agency (PCTPA)* – A Feasibility Study has been conducted and has identified potential BRT routes that connect with Sacramento Regional Transit’s light rail transit system. The identified routes are conceptual in nature, include cost and time frame factors, and are referenced in the Regional Transportation Plan. However, currently there is no project funding at any jurisdictional level (local, state, or federal). In order to apply for and receive federal funding, PCTPA would need a local match and any local match depends on voters’ approval of a sales tax, which is not yet assured of due to the

economic recession and slow recovery. Currently, the project is on hold and not progressing forward.

*Sacramento metropolitan area on Jackson Highway (SR16) / SACOG-City of Sacramento* – The project is only at a very early stage and is currently experiencing no delays. Federal funding has not yet been applied for. Caltrans District 3 is currently developing the Project Initiation Document for this project, which is scheduled to be released soon.

*VelociRFTA / Roaring Fork Valley Transportation Authority (RFTA in Colorado)* – The project is approaching the 100% Design level with the Construction step anticipated to begin in early 2012. RFTA has applied for but not yet received federal funding. Both Colorado State DOT and FTA PDPs are being followed and in some cases RFTA has had to perform some tasks twice. There have also been times where added resources, money, and time have been spent in following both sets of procedures.

*Metro Rapid BRT / Capital Metropolitan Transportation Authority (CapMetro) (Austin, TX)* – Two routes are involved in the BRT project on three TX-DOT highways; one route is at the 30% Design level and the other route is not yet in the design stage. Federal funds have been applied for and FTA's PDP is governing the process. TX-DOT requires only that CapMetro submit appropriate documents for review and approval when the project is at the 100% Design and NEPA-related and that CapMetro does not have to officially abide by the TX-DOT PDP, so it is not heavily involved in implementation of the BRT. Also, TX-DOT has relinquished control of part of the route and the City of Austin controls the traffic signal systems along the routes.

*Euclid Ave. BRT / Greater Cleveland Regional Transit Authority (GCRTA)* – GCRTA had to conform to both OH-DOT and FTA's PDPs. There were procedural delays during the PE stage dealing with adhering to OH-DOT's geometric standards. FTA was aware of GCRTA's having to follow the State PDP and its differences with FTA's PDP; but for environmental work, i.e., NEPA process, FTA's PDP had priority. Otherwise, few conflicts contributing to time delays have arisen.

*EmX BRT / Lane Transit District (Eugene-Springfield, OR)* – Part of the route within the City of Eugene was part of the Oregon SHS during the project’s planning and initial design stages, but was subsequently relinquished to the City; part of the route within the City of Springfield has always been and remains part of the Oregon SHS. Oregon DOT did not require Lane Transit District (LTD) to follow Oregon’s project development procedures since LTD was already following FTA’s project development procedures.

### **3.2 Factors Contributing to No Implementation Delays**

In this and the following section we focus on the absence and presence of project implementation delays, respectively. Twelve of the 16 bus rapid transit projects we investigated currently show no signs of implementation delay. A listing and description of factors contributing to this lack of delay are shown in Table 3.

Four of these 12 BRT projects consist of routes that are both on the State Highway System (“Y” in second column of Table 3) and has either applied for or already received federal funding (“Y” in third column of Table 3). For two of these four projects<sup>3</sup>, it is important to note that the relevant State DOTs are sufficiently flexible in their project oversight to permit the FTA-based set of project development procedures to have priority over their own set of procedures. For another one of these four projects – the Van Ness Avenue BRT in San Francisco – it is currently early enough in the implementation to have not yet experienced delays according to the project implementation agency. The fourth project<sup>4</sup> has not yet experienced delays associated with having to follow both Caltrans’ and the federal PDPs because of current very limited involvement in the project by Caltrans due to resource constraints and project uncertainty.

For the five of 12 BRT projects that are on the SHS (“Y” in second column of Table 3) though without federal funding (“N” in third column of Table 3), one of these five projects is currently not actively moving forward<sup>5</sup>; another one of these five projects is

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<sup>3</sup> Metro Rapid BRT in Austin, Texas and the EmX BRT in the Eugene-Springfield area of Oregon

<sup>4</sup> SF Bay Area El Camino Real BRT / Santa Clara County Valley Transportation Authority

<sup>5</sup> Sacramento metropolitan area I-80/ Placer County

only at an extremely early stage of PID development having not even applied for federal funding<sup>6</sup>; another of these five projects essentially does not have Caltrans involvement because it is in mixed flow traffic not a bus-only lane<sup>7</sup>; the implementing agency for yet another of these five projects is negotiating with Caltrans over State relinquishment of control over the BRT route<sup>8</sup>. For the fifth of these five projects, which is actively moving forward toward implementation, unfamiliarity with the Caltrans PDP is not an issue contributing to delay<sup>9</sup>.

For the three remaining BRT projects that are not on the California SHS – all of which are in the San Diego metropolitan area – two are not receiving federal funding and the third project receiving federal funding strictly follows the FTA-based PDP. Since none of these three projects is on the California SHS, SANDAG, the implementing agency in each case, does not have to follow Caltrans' PDP. Instead, it follows only FTA's PDP or a generic version of it and no delays have yet been experienced for these three projects.

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<sup>6</sup> Sacramento metropolitan area on Jackson Highway (SR16)

<sup>7</sup> Lincoln Blvd. *Rapid 3* in Santa Monica

<sup>8</sup> Alum Rock BRT in San Jose

<sup>9</sup> South Bay BRT in San Diego

**Table 3** Lack of Implementation Delay

<b>BRT Project / Implementing Agency</b>	<b>Is it on the State Highway System?</b>	<b>Has it applied for or received Federal funding?</b>	<b>Factors explaining lack of implementation delays</b>
SF Bay Area Van Ness Ave. BRT / SF County Transportation Authority(SFCTA)	Y	Y	<ul style="list-style-type: none"> <li>• Currently no delay</li> </ul>
SF Bay Area El Camino Real BRT / SC VTA	Y	Y	<ul style="list-style-type: none"> <li>• Caltrans District 4 not yet involved due to resource constraints so VTA currently not following Caltrans' PDP though remaining consistent with the PID; VTA waiting for State to get more involved</li> <li>• Some project uncertainty remains at this time</li> </ul>
SF Bay Area Alum Rock BRT / SC VTA	Y	N	<ul style="list-style-type: none"> <li>• No federal funding; all local and State financial sources</li> <li>• Caltrans District 4 and City of San Jose negotiating State relinquishment over route after which Caltrans would have minor role</li> </ul>
San Diego Mid-City Rapid Bus / SANDAG	N	Y	<ul style="list-style-type: none"> <li>• Not on SHS and so SANDAG does not have to follow Caltrans PDP</li> <li>• SANDAG follows only FTA PDP</li> </ul>
San Diego South Bay BRT / SANDAG	Y	N	<ul style="list-style-type: none"> <li>• Currently no federal funding</li> <li>• SANDAG follows State PDP, but any unfamiliarity with PDP not an issue and does not contribute to delay</li> </ul>
San Diego Escondido Breeze BRT / SANDAG	N	N	<ul style="list-style-type: none"> <li>• Project route is not on SHS, SANDAG does not have to follow Caltrans PDP</li> <li>• No federal funding</li> </ul>
San Diego I-15 Corridor BRT / SANDAG	N	N	<ul style="list-style-type: none"> <li>• Project consists only of construction of BRT stations and vehicle purchase; 4 out of 5 stations are outside SHS ROW</li> <li>• Caltrans role is not major</li> <li>• No federal funding</li> </ul>
LA metropolitan area Rapid 3 BRT / Big Blue Bus	Y	N	<ul style="list-style-type: none"> <li>• No current Caltrans involvement as BRT system is in mixed flow traffic and Caltrans District 7 has not yet approved use of bus lanes</li> <li>• No federal funding applied for</li> </ul>
Sacramento metropolitan area I-80/Placer County-Watt	Y	N	<ul style="list-style-type: none"> <li>• No funding at any jurisdictional level thus far</li> <li>• Federal funding would require local match, which must be voter approved and is not yet assured due to economic recession</li> </ul>

<b>BRT Project / Implementing Agency</b>	<b>Is it on the State Highway System?</b>	<b>Has it applied for or received Federal funding?</b>	<b>Factors explaining lack of implementation delays</b>
Ave. to SR65 / Placer County Transportation Planning Agency			<ul style="list-style-type: none"> <li>As a result, project currently on hold and not actively moving forward</li> </ul>
Sacramento metropolitan area on Jackson Highway (SR16) / SACOG-City of Sacramento	Y	N	<ul style="list-style-type: none"> <li>BRT project is only at very early stage; working on PID development</li> <li>Federal funding has not yet been applied for</li> </ul>
Metro Rapid BRT / Capital Metropolitan Transit Authority (CapMetro) (Austin, TX)	Y	Y	<ul style="list-style-type: none"> <li>Texas DOT's PDP requirements are flexible and allows implementing agency (Capital Metro Transit) to follow FTA's PDP and not required to strictly follow the State's PDP, except for submittal of documents at 100% Design and NEPA-related for State review</li> </ul>
EmX BRT / Lane Transit District (Eugene-Springfield, OR)	Y	Y	<ul style="list-style-type: none"> <li>Oregon DOT relinquished control of part of the route to the City of Eugene</li> <li>Oregon DOT was comfortable with and flexible about allowing FTA's PDP to take priority</li> </ul>

### **3.3 Factors Contributing to Implementation Delays**

Four of the 16 bus rapid transit projects that we investigated have experienced implementation delays to one degree or another. Each of these four projects is on the State Highway System in their respective State and has either applied for or already received federal funding. These four projects consist of the following:

- East Bay BRT in the San Francisco Bay Area with AC Transit as the implementing agency
- Monterey Peninsula BRT / Monterey Salinas Transit (MST) District
- VelociRFTA / Roaring Fork Valley Transportation Authority (RFTA) in Colorado
- Euclid Ave. BRT / Greater Cleveland Regional Transit Authority (GCRTA)

Based on our site-specific investigations, we have identified numerous factors that can play an influential role in the type of issues and extent of time delays that are experienced by BRT implementing agencies in the context of having followed or are following both State and Federal PDPs for these projects. Such factors focus on institutional and organizational relationships among stakeholders – especially between State DOTs and the USDOT – and the nature of the BRT project on the State Highway System. Such factors include the following:

- Number of municipalities along the BRT route having jurisdictional authority over the BRT project; the more of this type of stakeholder, the more complex will be the project's implementation process since the municipalities' priorities and requirements for the BRT route may not all be in sync with each other. For example, the Van Ness Avenue BRT project is located in the City of San Francisco, which, geographically, is the same as the County of San Francisco and the implementing agency is the San Francisco County Transportation Authority. Whereas the East Bay BRT Project, also in the San Francisco Bay Area, runs through the cities of Berkeley, Oakland, and San Leandro all three of which have final approval authority over the final disposition of the project within their jurisdiction. AC Transit, the implementing agency, has to deal with all three cities, which can make for a more complex and time consuming implementation process.



- Relationships among organizational and agency stakeholders and the level of coordination among them
- Specific agency (and its type) with project approval and implementation authority
- Degree of common language used in the PDPs and potential for multiple interpretation of terms because of potentially differing transit and highway contexts
- Extent of the impact of the BRT project on the SHS, e.g., queue lane or traffic signal only; full or partial removal of a travel lane or parking lane; time-of-day variations.
- Type and level of financial commitment, especially the extent of State funding investment that can serve as an incentive to participate and see the project to a successful conclusion
- Experience and familiarity of State DOT and implementing agency (transit agency, MPO, or local/regional Transportation Authority) with each other's culture and way of conducting business
- Federal view of the State's role: equal partner or just one of the locals
- Issues and potential implementation delays are more likely to occur in certain PDP steps than others, e.g., early in the PDP, there is less likelihood of delays.

#### 4.0 RECOMMENDATIONS

Based on our investigative case studies of agencies implementing bus rapid transit projects general recommendations have been developed that when converted into practice can serve to help mitigate the issues and implementation delays associated with having to follow both the State and Federal project development procedures. However, it should be noted that every project is different with its own set of jurisdictional, institutional, and operational characteristics and that “one size fits all” probably does not apply here and that a trial-and-error component should be used to determine which recommendations work best for each project. The following recommendations are as follows:

1. More direct and improved communications among project partners, especially between the relevant State DOT and Federal, i.e., FTA, representatives throughout the course of the project; this may be converted into practice by having direct meetings – teleconference or face-to-face – among project partners but especially between Caltrans and FTA. It is important for State officials to understand that the Federal perception of the State project role may at times be that the State is “just one of the locals” instead of a co-equal project partner. It is also important to get Federal recognition of the existence of and need to sometimes adhere to the State PDPs as well as the Federal PDPs and that conflicts can sometimes arise.
2. Implementing agency (local/regional transit agency or MPO) needs to be proactive and assume a leadership role in seeking FTA and State DOT guidance to help preclude issues from coming up
3. Examine each set of project development procedures at the start of the project with State DOT and FTA representatives to
  - a. identify similarities and differences
  - b. determine where compromises can and cannot be made
  - c. determine who has priority under what circumstances and at what procedural steps
  - d. recognize and resolve differences among terms and language used vis-à-vis the transit vs. highway contexts

- e. identify steps in the (State and Federal) PDPs where merging of tasks between these PDPs may be allowed as part of a plan to allow more flexibility in carrying out the PDPs; this will depend on the unique characteristics of each individual BRT Project and the extent of the impact of each BRT Project on the SHS.

This may be converted into practice by having at the Project Kick-Off meeting the start of a discussion on both Caltrans' and the FTA's PDP to follow sub-bullets a. through e. above. This task will not be completed at the Kick-Off meeting and should continue afterwards; a working subgroup of the Project Team could be tasked with this assignment and with follow-up progress reports submitted.

- 4. Become aware and take advantage of project-specific opportunities; one way this may be converted into practice is by identifying, if possible, agency staff that has experience and familiarity with the business culture of both the State DOT and the implementing agency. Having someone able to see both sides of an issue can help smooth out differences and issues that arise and make forward progress in the project.

## **5.0 CONCLUSIONS**

This report documents an investigation of the project development process for the implementation of bus rapid transit systems whose routes are on the State Highway System and are also part of the Federal New Starts Project Planning and Development Program, which brings together two different types of transportation implementation projects: the traditional highway construction project and a public transportation project. The focus was on two sometimes differing Project Development Procedures – State and Federal – both of which must at times be followed. Because of such differences, conflicts can arise and contribute to the use of resources that might not otherwise be employed potentially resulting in implementation delays. Initially, a comparison of both State and Federal Project Development Procedures was made to understand the similarities and differences between these two sets of procedures, which was followed by site-specific assessments of BRT projects that formed the basis of recommendations that if put into practice could help mitigate the impact of having to follow multiple Project Development Procedures for a single bus rapid transit project and to help implement such a project more efficiently with fewer delays.

The recommendations involve working within the current framework of existing project development procedures used by State and Federal agencies – the “low hanging fruit” type of recommendations – and targeting what is easier to achieve or solve. The recommendations do not initially involve changes to either set of State or Federal procedures, which could be challenging to implement. Modifying Federal procedures could be especially problematic because of the potential need for such procedures to be simultaneously compatible with each set of individual State procedures, which could be a very difficult logistical task to implement.

Next steps that may be followed in the short-term in the pursuit of reducing BRT project implementation delays are to carry out these recommendations on specific BRT projects and test their effectiveness at reducing the conflicts arising together with associated

delays due to the need to adhere to both State and Federal PDPs. Depending on the effectiveness of these recommendations will determine the likelihood of implementing further steps including proposing specific changes to State project development procedures and the guidance they provide in the implementation of bus rapid transit projects on a State highway system.

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