



DATE ISSUED: June 1, 2005 REPORT NO. CCDC-05-21

ATTENTION: Chair and Members of the Redevelopment Agency
Docket of June 14, 2005

SUBJECT: Design Review and Second Amendment to Agreement with BDS Engineering for the Downtown San Diego Quiet Zone – Area Wide

REFERENCE: Cost Estimate Worksheet
Basic Concept Drawings for Quiet Zone Grade Crossings

STAFF CONTACT: John L. Anderson, Senior Project Manager - Public Works
Garry Papers, Manager - Architecture & Planning

SUMMARY

Issue - Should the Redevelopment Agency:

1. Approve the design of the Downtown San Diego Quiet Zone; and
2. Approve the Second Amendment to Agreement with BDS Engineering for design and construction management services for the Downtown San Diego Quiet Zone in the amount \$350,214? The maximum compensation will not exceed \$574,600.

Staff Recommendation– That the Corporation recommend that the Redevelopment Agency:

1. Approve the design of the Downtown San Diego Quiet Zone; and
2. Approve the Second Amendment to Agreement with BDS Engineering for design and construction management services for the Downtown San Diego Quiet Zone in the amount of \$350,214. The maximum compensation will not exceed \$574,600.

Centre City Development Corporation Recommendation– the Corporation Board will hear this item on May 25, 2005. Staff will provide an oral update at the June 7, 2005 meeting.

Centre City Advisory Committee (CCAC)/Project Area Committee (PAC) Recommendation– On May 18, 2005, the CCAC and PAC, by vote (CCAC- 22-1, PAC - 19-1), recommended approval of staff recommendation with the condition that the

traffic impact study be brought to the CCAC/PAC to address their concerns regarding the intersection of Kettner and G streets.

Other Recommendations - A widely publicized community update and workshop for the Quiet Zone (QZ) was held on March 3, 2005. Public comments were received at the workshop, reviewed by the design team, and incorporated into the design where feasible.

Fiscal Impact – The Second Amendment cost for design is \$350,214, for a total compensation not to exceed \$574,600. Funds are available in the Fiscal Year 2004-2005 Area-Wide Project Budget.

Environmental Impact - This activity is a categorical exemption under existing facilities pursuant to the State of California Environmental Act Guidelines 15301 (C) and (F).

BACKGROUND

The project will advance the Visions and Goals of the Centre City Community Plan and the Objectives of the Centre City Redevelopment Project by:

- encouraging the rehabilitation and upgrading of properties;
- strengthening the economic base of downtown with public improvements to support and stimulate new development;
- providing safe, efficient transportation systems;
- improving the railroad and street right-of-way grade crossings to the latest standards to maximize public and train safety;
- increasing the quality of life for downtown residents and businesses by reducing the noise associated with train horns; and
- minimizing the conflict between pedestrians, vehicles, and trains.

Downtown San Diego, like many similar urban environments and areas with large population growth throughout the United States, has had a large increase in residents adjacent to railroad tracks and crossings. In downtown San Diego, as the area along the rail corridor has transitioned from industrial to residential and recreational uses, the noise associated with the sounding of locomotive and trolley horns has become a major concern of the residents and Centre City Development Corporation (CCDC). Train horns, especially during the nighttime hours, can have a significant negative impact on the quality of life of the residents. The Federal government, through the Federal Railroad Administration (FRA), is addressing the quality of life issue in the Final Rule for the Use of Locomotive Horns at Highway-Rail Crossings. In this rule, the FRA (for the first time) set out the regulatory procedures and technical requirements necessary for the implementation of a Quiet Zone

in which train horn noise is reduced. It is important to note that the rules limit, but not completely prohibit, the sounding of horns.

Examples of continued use are the requirement to sound the horns when starting and stopping at stations, and in emergencies. CCDC, to improve the quality of life for downtown residents and visitors, has hired a consultant with the objective of the implementation of the Downtown San Diego Quiet Zone.

DESIGN CRITERIA OF THE DOWNTOWN QUIET ZONE

The FRA recently published the final Rule on April 27, 2005. The published Final Rule has revisions in how Quiet Zones are calculated from the Interim Final Rule, which this scope of work was based on, along with the Diagnostic team meeting recommendations. The revisions will allow a much smaller scope of work to create a Quiet Zone. The Corporation has reviewed the revisions, and determined that it is possible to apply for a Quiet Zone with a smaller scope of work to achieve a Quiet Zone as quickly as possible. The larger scope of work, which consists of significant improvements upgrading the crossings to the latest railroad and safety standards, would be completed per this report as a second, later phase per the time schedule listed. At this time, the Corporation is proceeding with a Quiet Zone application with a smaller scope of work to start the Quiet Zone as quickly as possible.

The new federal rules create a methodology for the creation and maintenance of a Quiet Zone. The implementation of a Quiet Zone requires an assessment of the National Significant Risk Threshold Formula to demonstrate that the safety improvements made at the 13 crossings in Centre City will enhance safety sufficiently to fully compensate for the elimination of the routine sounding of locomotive horns. Previous accident data is used in this evaluation.

An assessment of the existing grade crossings by a diagnostic team is required. The diagnostic team field visit was held on January 18, 2005. The team was comprised of operating and regulatory stakeholders, along with the City of San Diego, and the Corporation. The diagnostic team looked at the physical factors at each crossing, including items such as the existing gates and warning devices, sight distance, visibility, approach grades, number of lanes, traffic patterns, the location of existing driveways and adjacent roads, and pedestrian behavior at each of the intersections.

A Quiet Zone can be achieved if the existing conditions already meet the criteria, or by a combination of new Supplemental Safety Measures (SSM) and Alternative Safety Measures (ASM) to meet the requirements. A brief description of SSM (of which there are four):

- 1) Temporary Closure of a Public Highway-Rail Grade Crossing: Close the crossing to traffic during designated quiet zone periods. (Will not be used as part of San Diego Quiet Zone).
- 2) Four-Quadrant Gate System: Install gates at a crossing sufficient to fully block highway traffic from entering the crossing when the gates are lowered. In addition, when a train is approaching, gates must span all approach and exit lanes on both sides of the crossing.
- 3) Gates with Medians or Canalization devices: Install medians or canalization devices on both approaches to a grade crossing. Medians must be at least 100 feet in length from the gate arm or, if there is an intersection within 100 feet, the median must extend at least 60 feet. Intersections, driveways, streets and alleys within 60 feet of the gate arm are not allowed, unless as part of a public authority application as an ASM reviewed and approved by the FRA, per the Final Rule requirements.
- 4) One-Way Streets with Gates: Gates must be installed such that all approaching lanes to the grade crossing are completely blocked.

Definition of ASM:

There are two types of ASMs - Modified SSMs and non-engineering ASMs.

Modified SSM: A modified SSM does not fully comply with the requirements of a SSM. The FRA will review the safety effects of a modified SSM and the proposed Quiet Zone, and will approve the proposal if it finds that the Quiet Zone Risk Index is reduced to the level that would be expected with the sounding of train horns, or to a level at or below the National Significant Risk Threshold, whichever is greater.

Non-engineering ASM consists of:

- 1) Programmed Enforcement: Community and law enforcement officials commit to a systematic and measurable crossing monitoring and traffic law enforcement program at the grade crossings.
- 2) Public Education and Awareness: Conduct, alone or in combination with programmed law enforcement, a program of public education and awareness directed at motor vehicle drivers, pedestrians and residents.
- 3) Photo Enforcement: Automated means of gathering photographic or video evidence of traffic law violations together with follow through by law enforcement and the judiciary.

The effectiveness of an ASM is determined by establishing a baseline quarterly violation rate, then initiating the ASM. The effectiveness rate can then be determined, and then the Quiet Zone Risk Index. If and when the Quiet Zone Risk Index for the proposed quiet zone has been reduced to either the risk level which would exist if horns were sounded at all

crossings in the quiet zone, or to a risk level below the National Significant Risk Threshold, the public authority may apply to the FRA for approval of a Quiet Zone.

DESIGN OF THE DOWNTOWN QUIET ZONE

The SSM/ASMs proposed in the design are based on the guidelines in the FRA's Final Rule, and the recommendations of the diagnostic team, which have been determined to be a mixture of upgrading to four quadrant gates, pre-signals on the approach crossings, warning signage, safety striping, median islands, and the possible installation of queue cutters and miscellaneous improvements. The design will include the incorporation of the new enhancements into the existing grade crossing systems.

The scope of work involves 13 crossings in Centre City, from Laurel Street south to the intersection of Park Boulevard and Harbor Drive. However, the intersection of Park Boulevard and Harbor Drive, and associated railroad crossing improvements, will be designed and constructed under a separate Corporation project. Please see attached worksheet detailing improvements at each intersection and the cost estimate of the work.

Summary of major items of work at the 12 crossings and estimated cost:

<u>Upgrade Six Intersections to Quad Gates (Three or Four Gates at Intersection)</u>	<u>Cost Estimate</u>
Laurel, Ash, Beech, Cedar, Market and Fifth	\$1,550,000
Convert G Street to One Way at Kettner	300,000
Install or Upgrade to #8 Flashing Red Pedestrian Lights	310,000
Installation of Pre-Signals at Three Intersections	120,000
Install Two Cantilevers with Lights at Broadway	120,000
Queue Cutters (Based on Queuing Analysis)	120,000
Add Pedestrian Gates (Based on Pedestrian Study)	75,000
Construct Median Islands (Laurel, Cedar, Beech and Ash)	35,000
Signage Striping, removing Sidewalk Panels, Fencing, Etc.	<u>\$100,500</u>
Total	\$2,730,500
Contingency 10%	\$273,050
Grand Total	<u>\$3,003,550</u>

The item of work with the most impact to the public concerning traffic circulation is the conversion of G Street from a two-way street to a one-way street. G Street converted to one-way eastbound at Kettner has been determined to have the least negative impact to traffic circulation when considering the alternatives that would meet the criteria of a Quiet Zone, such as both Kettner and G being one-way streets, or Kettner one way, or closing either Kettner or G streets to traffic. Historically, the railroads and the California Public

Utilities Commission (CPUC) have had concerns over the design of the existing intersection. In 2000, Burlington Northern and Santa Fe Railroad (BNSF) hired a consultant to conduct a Quiet Zone Study (not based on current Quiet Zone requirements) and recommended improvements for a Quiet Zone. The study recommended the closure of Kettner at G. (The study also recommended the closure of Beech and Fifth.)

The intent of the Quiet Zone design is to minimize revisions to the intersection, while proposing a design that will meet the requirements of a Quiet Zone, and be seen as a significant safety improvement by BNSF and CPUC.

Due to the alignment of the trolley and freight tracks crossing diagonally through the intersection, it is not possible to use other options (SSM and ASMs) such as medians or upgrading the intersection to quad gates to meet the Quiet Zone requirements and the diagnostic team recommendations. G Street is currently two ways from Pacific Highway to Front, and then changes to one way eastbound at Front. The minimum that G can be revised to one way for the purpose of the Quiet Zone is from Pacific Highway to Kettner, then to Columbia (westbound G- left on Columbia, south to Market), or to State (westbound G- right turn north, or left turn south to Market). The consultant is currently performing a traffic study of converting G to a one-way street at Kettner, including the ten intersections adjacent to Kettner and G. The study will include the existing traffic circulation patterns compared to the potential traffic circulation patterns of G one way. The study will take into account G being extended to Harbor Drive to the west as part of the downtown master plan.

SCHEDULE

Timeline

Phase 1-Project Definition (complete)

October – November 2004

Verify Crossings for inclusion in the QZ

Data Collection and Review

Grade Crossing Inventory

Calculate QZRI (Quiet Zone Risk Index)

Compare NSRT (National Risk Index)

Compare NSRT (National Significant Risk
Threshold)

Phase 2- Consensus (complete)

December – February 2005

Agency consensus

CCDC and the City of San Diego

SANDAG

Railroad Entities

San Diego Northern

San Diego Trolley, Inc.

BNSF

CPUC (Diagnostic)
FRA (Diagnostic)
AMTRAK

Community

CCAC
Community Workshops

Phase 3- Refinement (complete)

March – April 2005

Refine Analysis
Report Preparation

Phase 4- Implementation

May 2005 – April 2006

Preliminary Design
Agency Review
Final Design
Agency Review
Permitting
Advertisement/Bidding
Construction
Upgrade National Inventory

Phase 5- Notification

May – June 2006

Railroad Notifications

FRA Form

CONSULTANT DESIGN AMENDMENT

In August 2004, the Corporation sought Request for Proposals for engineering consultants for the Downtown San Diego Quiet Zone. The scope of work consisted of a first phase of the inventory of 13 at-grade crossings in Centre City (Park Boulevard to Laurel Street), and the assistance in the application for a Quiet Zone, with an optional second phase of the design of the required improvements and construction management. The Corporation chose BDS Engineering (BDS) and Korve Engineering as the consultant and the subconsultant for the Quiet Zone. The contract amount was \$58,078.

The contract was completed in March 2005. The scope of work for obtaining a Quiet Zone in downtown San Diego was determined in the first phase by the five tasks, as required by the FRA Final Rule and the required Diagnostic Meeting held on January 18, 2005 with the railroad stakeholders such as BNSF, the CPUC, City of San Diego Traffic Engineering, FRA, and the MTS providing required input in the proposed Downtown San Diego Quiet

Zone design.

The scope of work for the second phase, design and construction management, is identified in the following fourteen tasks:

<u>TASK</u>	<u>COST</u>
1. Traffic study of Kettner and G Streets (G to one-way street)	\$ 28,420
2. Pedestrian study of five grade crossings	22,538
3. Queuing analysis of four grade crossings	22,622
4. Grade crossing design	195,520
5. Surveying	59,428
6. Advertising and support	6,128
7. Construction and Maintenance Agreements	33,300
8. CPUC	14,960
9. Design and support and inspection during construction	26,032
10. Update National Inventory Sheets	10,872
11. Design and public meetings	24,982
12. Dual Track Application Processing for Interim Quiet Zone	35,904
13. Analysis of "G" to Front Street Traffic study Task 1 amendment	5,684
14. Traffic Signal Modifications and restriping for "G" Street Conversion to one-way eastbound to Front Street	<u>\$30,132</u>
Total	<u>\$516,522</u>

The consultant scope of work is structured as time and material, not to exceed the task amount.

On April 6, 2005, the Corporation issued a Notice to Proceed to the consultant to begin work immediately on Tasks 1,2,3,5, and 7, which consist of preliminary design studies, surveying, and the Construction and Maintenance Agreements. These five tasks constitute the First Amendment to the contract. The First Amendment was disclosed at the April 20, 2005 CCDC Board Meeting per Corporation policy.

The Second Amendment to the contract consists of the remaining tasks (4, 6, 8, 9, 10, 11, 12, 13, and 14) which will complete the consultant design and construction management of the Quiet Zone. The Second Amendment tasks total \$350,214.

Summary of BDS/Korve Quiet Zone contract:

Original Contract (December 2004)	\$ 58,078
First Amendment to Contract (April 2005)	166,308
Paid to Date	(52,773)
Proposed Second Amendment	<u>350,214</u>
Amount Available Subsequent to this Amendment	<u>\$521,827</u>

CONSULTANT FIRM

ROLE/FIRM	CONTACT	OWNED BY
Prime Consultant – BDS Engineering	Severo Chavez	<i>Privately Owned - Principals: Gordon K. Axelson (President)</i>

EQUAL OPPORTUNITY

BDS Engineering, Inc. submitted a Work Force Report to the City of San Diego for analysis on April 11, 2005, which indicates of a total of 27 employees, 5 are female and 4* are members of under-represented ethnic groups.

- (1) African-American Male*
- (2) Hispanic Males
- (1) African-American Male

City of San Diego staff has requested an Equal Employment Opportunity (EEO) plan describing equal employment policies and practices to remedy the identified under-representations. EOCP staff is working with Mr. Jones of BDS Engineering, Inc. to ensure that an EEO plan is submitted and approved by the City of San Diego.

SUB-CONSULTANTS

The sub-consulting firms are comprised of the following:

Firm Name: BDS Engineering		
Sub-consulting Firms	Principals	Firm Certification
Korve Engineering	Hans Korve	Uncertified SBE

SUMMARY/CONCLUSION

The current effective date for the Final Rule is June 24, 2005. This date has been changed twice to date, with an original effective date of December 18, 2004, then April 1, 2005, and now June 24, 2005. If the date remains unchanged, the FRA per the Final Rule starting June 24, 2005, will determine train horn use in the United States. This will also allow the establishment of Quiet Zones per the Final Rule.

The Corporation has researched recent changes to the Final Rule involving the methodology for the creation of Quiet Zones. The revisions have created the possibility of two phases of work- a smaller scope of work in the first phase to achieve the Quiet Zone in the least amount of time, and a second phase constructing the remainder of the work per this report, to update the crossings per the FRA Final Rule and Diagnostic Team recommendations to the latest railroad and safety standards.

In order to reduce the impact of train horns on the residents and businesses of downtown San Diego after June 24, 2005, as allowed by the Final Rule, the downtown San Diego Quiet Zone enhancements need to be designed, constructed, and implemented as quickly as possible. The proposed improvements will meet the Final Rule requirements for a quiet zone, and ensure that the San Diego Quiet Zone intersections meet the safety standards for pedestrians, vehicles, and train interactions as set forth in the Final Rule.

Respectfully submitted,

Concurred by:

John L. Anderson, PE
Senior Project Manager – Public Works

Peter J. Hall, President

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Manager – Architecture and Planning

Attachment(s) - Basic Concept Drawings
 Cost Estimate Worksheet