



METROPOLITAN
TRANSPORTATION
COMMISSION

***Request for Expressions of Interest
(RFEI) for Next Generation Clipper[®]
(C2) Regional Transit Fare Payment
System Integrator and Customer
Service Center***

Release Date: April 4, 2016

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1.0 Introduction and General Information

1.1 Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) was created by the state Legislature in 1970 (California Government Code § 66500 *et seq.*) to serve as the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area.

1.2 Clipper® Program

1.2.1 Background

Originally called Translink®, the Clipper® system began operation in the Bay Area in 2002 and has been expanding to all participating agencies through a phased implementation. Over the next several years the system became available to more and more transit customers throughout the region, gradually gaining participation and market share. In 2010 Translink® was rebranded as Clipper® and participation climbed more dramatically; by 2013 the Clipper® agencies began preparation for a next-generation electronic fare collection system.

Today, Clipper® is available on 20 participating agencies including AC Transit, San Francisco Bay Area Rapid Transit District (BART), Caltrain, County Connection, Fairfield and Suisun Transit (FAST), Golden Gate Transit & Ferry, Livermore Amador Valley Transit Authority (WHEELS), Marin Transit, Petaluma Transit, the San Mateo Valley Transit District (SamTrans), San Francisco Bay Ferry, San Francisco Municipal Transportation Agency (SFMTA), Santa Rosa CityBus, Solano County Transit (SolTrans), Sonoma County Transit, Tri Delta Transit, Vacaville City Coach, VINE transit (Napa County), Santa Clara Valley Transportation Authority (VTA) and Western Contra Costa Transit Authority (WestCAT) (collectively, the “partner transit operators”). Clipper® is currently available to 95 percent of all transit customers in the Bay Area; however, expansion to the remaining participating agencies is planned to continue during the development of the next generation Clipper® regional fare payment system (“C2”).

The current Clipper® system reliably supports over 100 fare products, calculates transfer discounts between agencies and handles complex payment functions. This includes a variety of partner transit operator-specific fare policies including flat fares on some services, distance based fares on others, tap-in only with free exit, and tap-in/tap-out; all of which co-exist and operate in the system. The region also operates a variety of employer and institutional programs and is considering how to integrate other services such as parking, paratransit, and other services to help riders in the Bay Area move effectively and seamlessly through the region.

Much of the Clipper® infrastructure is designed to require little ongoing maintenance. The current system design also emphasizes quick fare payment and auto-load features, promoting efficient boarding and convenience. While the strengths of the Clipper® system have provided the Bay Area today with a sound fare payment system, there are several opportunities for expansion, improvement and wholesale modernization. To continue supporting the mission of Clipper®, MTC and the partner transit agencies will build on the current successes of Clipper® and implement C2.

The original system was supplied by ERG Transit Systems (now Vix Technology), which was responsible for providing all of the fare collection devices and back-end transaction processing, reporting and customer service systems as a subcontractor under MTC's original TransLink® system contract with Motorola. ERG and Cubic Transportation Systems reached an agreement for the purchase or license of the ERG assets relating to TransLink® by Cubic, subject to the occurrence of certain conditions, and negotiated with MTC terms and conditions for a conformed contract that both MTC and Cubic would be willing to execute after such a purchase of ERG assets. MTC approved this approach, and Cubic took over as contractor under the Clipper® Contract in July 2009. Over time the system has evolved and now represents a blend of the original ERG systems, software and equipment, and Cubic-supplied systems, software and equipment. Additionally, agencies such as BART maintain their own fare collection equipment and systems with Clipper® devices integrated into that equipment. Under C2, MTC does not currently intend to replace existing Clipper® equipment and instead expects that any new C2 components will be integrated and work with existing transit operator infrastructure.

1.2.2 Next Generation

Today's Clipper® is generally well-liked by Bay Area transit customers and highly regarded among industry professionals. With more than 700,000 transactions processed on a typical weekday and a high customer satisfaction rate, the current system functions soundly. However, designed nearly two decades ago, the Clipper® system in place today was one of the first contactless transit payment systems implemented in the United States. The technology landscape has changed since then with technological advances bringing capabilities able to significantly enhance the user experience for both the transit customer and the agencies managing the system.

Generally, the desire to bring Clipper® into the next generation is two-fold. First, there is a strong desire to improve functionality with the purpose of enhancing the customer experience and usability. Second, at nearly twenty years old, the system is in need of a full scale analysis to determine which components of the system are working well and which need to be refreshed, redesigned or improved.

For example, one of the major drawbacks of the current system is the lack of real-time information and support for both the customer and the agencies. Today, funds added to the customer's account can take days to be reflected on the fare media. This can produce justifiable frustration when a customer attempts to pay a transit fare knowing they have already added funds online, but finds out at the point of payment that the funds have not yet reached their Clipper® card. Additionally, partner transit operators are looking for ways to provide real-time operational support to improve the services they provide. The process and software modifications required to reflect fare rule changes can be cumbersome and time-consuming and an improved design would allow MTC and its partner transit operators to manage change more effectively. This deficiency of not having a real-time or near real-time system for both the customers and the agencies could be resolved with a new system.

Furthermore, the Bay Area has a worldwide reputation for being at the forefront of technology innovation, and is often one of the first communities to embrace technology revolutions. The region has expressed an interest in procuring a transit fare-payment system reflective of its

innovative culture and able to adapt to a changing technological landscape. Developing a system concept grounded in this vision will allow for a C2 system able to utilize the current technological choices of the customer (e.g., mobile apps) with an eye to help position the system to be more responsive to new solutions that may present themselves years after C2 has been implemented.

Through coordination with the partner transit agencies, the public and other key stakeholders, MTC is planning for the development, implementation and operation of C2. MTC expects to issue one or more procurements to obtain a C2 System Integrator and C2 Customer Service Center (CSC) Contractor.

2.0 Purpose and Overview of RFEI

MTC is issuing this RFEI to receive Expressions of Interest (EOIs) from firms (Respondents) interested in participating in procurement(s) for the C2 System Integrator, the C2 CSC Contractor, or both.

Issuing this RFEI does not commence a procurement process nor does it obligate MTC to commence a procurement or award a contract. Participation in this RFEI is not required for participation in any future procurements.

The purpose of this RFEI is to refine MTC's delivery strategy through consultation with the industry. Specifically, MTC seeks detailed feedback on the technical, commercial, financial, and procurement aspects of its preferred delivery strategies, as well as industry's view on the potential benefits from and challenges of combining large remaining portions of the Clipper® program into one or more Design Build Operate and Maintain (DBOM) or similar contracts, as further detailed in this RFEI. MTC is particularly interested in opportunities for cost savings and schedule acceleration and wishes to identify key commercial and financial terms that would reduce cost, reduce risk and assist in achieving those objectives. MTC is also open to receiving feedback from the industry on other delivery models that may allow it to meet these objectives. MTC may use the feedback received from industry to update its delivery strategy and commence one or more procurements in the future.

3.0 Submittal of the Expression of Interest

The following summarizes the submission and format guidelines of the EOIs. In addition to the information described below, MTC may request confirmation or clarification of information furnished by a Respondent, request additional information from a Respondent concerning its EOI, request additional evidence of experience pursuant to Section 4.0, or request additional evidence of Respondent's ability to perform the work described in this RFEI. The evidence of experience and formatting requirements Respondents should meet and adhere to are detailed in Section 4.0 and Section 9.0.

EOI submittal and all communications for this RFEI must be submitted to the MTC point of contact below:

Denise Rodrigues
Metropolitan Transportation Commission
101 8th Street
Oakland, CA 94607
Phone: (510) 817-5897
Email: drodri@mtc.ca.gov

All contact regarding this RFEI shall be through the MTC contact person listed above only. Respondents shall neither contact nor lobby any other MTC staff, any MTC consultant, or any partner transit operator staff regarding the RFEI during the RFEI process.

Respondents should submit an original and four (4) copies, as well as one electronic PDF version, of their EOI by **4:00 p.m. on Friday, May 6, 2016**, in accordance with the instructions contained in this RFEI. EOIs are requested by the due date and time listed, but may still be considered if received after that date at MTC's sole and absolute discretion.

This RFEI and any written material submitted in response to this RFEI are subject to public inspection under the California Public Records Act (Government Code §6250 et seq.), unless exempt by law. Other than proprietary information or other information exempt from disclosure by law, the content of EOIs submitted to MTC will be made available for inspection consistent with its policy regarding Public Records Act requests.

If Respondent believes any EOI content contains trade secrets or other proprietary information that Respondent believes would cause substantial injury to the Respondent's competitive position if disclosed, the Respondent may request that MTC withhold from disclosure such proprietary materials by marking each page containing proprietary information as confidential and shall include the following notice at the front of its EOI:

“The data on the following pages of this EOI, marked along the right margin with a vertical line, contain technical or financial information that constitute trade secrets and/or that, if disclosed, would cause substantial injury to Respondent's competitive position. Respondent requests that such data be used for review by MTC only, but understands that exemption from disclosure will be limited by MTC's obligations under the California Public Records Act. [List pages].”

Failure to include this notice with relevant page numbers shall render any “confidential/proprietary” markings inadequate. Individual pages shall accordingly not be treated confidentially. Any language purporting to render the entire EOI confidential or proprietary will be regarded as ineffective and will be disregarded.

In the event properly marked data is requested pursuant to the California Public Records Act, Respondent will be advised of the request. If the EOI requests that MTC withhold such data from disclosure and MTC complies with the Respondent's request, the Respondent shall assume all

responsibility for any challenges resulting from the non-disclosure; indemnify and defend MTC and hold it harmless from and against all claims, legal proceedings, and resulting damages and costs (including but not limited to attorneys' fees that may be awarded to the party requesting such Respondent information); and pay any and all costs and expenses relating to the withholding of the Respondent's information.

If the Respondent does not mark each page containing proprietary information as confidential, does not include the statement described above at the front of its EOI, and does not request that MTC withhold information marked as confidential and requested under the California Public Records Act, MTC shall have no obligation to withhold the information from disclosure, and the Respondent shall not have a right to make a claim or maintain any legal action against MTC or its commissioners, officers, employees or agents in connection with such disclosure.

4.0 Evidence of Experience

4.1 C2 System Integrator and C2 CSC

To be likely to be considered for one-on-one meetings with MTC (see Section 5.0), Respondents should demonstrate that the firm or team submitting the EOI submits the following evidence of experience.

4.1.1 C2 System Integrator

Experience within North America:

- Delivering and integrating at least one large, complex, multi-operator transit fare collection system using smart card technology.
- Implementing at least one account-based revenue collection system.

4.1.2 C2 CSC Contractor

Experience within North America:

- Operating a CSC exceeding 25,000 incoming calls per month involving product sales, customer self-service, customer account management, and customer information.
- Operating at least one commercial off-the-shelf customer relationship management system integrated with a revenue collection system.

MTC encourages Respondents who do not demonstrate the evidence of experience listed above to submit an EOI. MTC seeks any and all industry input on technical, commercial, financial, and procurement aspects of MTC's preferred delivery strategies and on the potential benefits from and challenges of combining large remaining portions of the Clipper® program into one or more DBOM or similar contracts.

4.2 Other Industry Providers

Respondents who provide other ancillary industry services, including, but not limited to, payment

application providers, mobile developers, Service as a Software (SaaS) providers or other technology leaders are encouraged to submit on questions related to their area of interest but are not required to submit evidence of experience.

5.0 One-on-One Meetings

After receipt of the EOIs, MTC plans to conduct a series of one-on-one meetings with Respondents. The one-on-one meetings will be conducted in order to discuss and ask questions about the EOIs. Upon completion of all one-on-one meetings, MTC may prepare and share a summary of the discussions as a whole; however, individual Respondents' perspectives and comments will be treated as confidential. MTC reserves the right to use any/all information discussed in the one-on-one meetings for the purposes of developing any future procurements.

One-on-one meetings are expected to be held with those Respondents who meet the evidence of experience listed in Section 4.0 for the C2 System Integrator, the C2 CSC Contractor, or both. MTC reserves the right to hold one-on-one meetings with Respondents that do not meet the evidence of experience listed in Section 4.0, if the Respondent will provide beneficial industry input on the key goals listed in Section 6.1 below. MTC reserves the right not to hold any one-on-one meetings or to limit the number of one-on-one meetings held.

One-on-one meetings are expected to occur in May or June 2016. MTC's point of contact will schedule the one-on-one meetings with Respondents.

6.0 The Project

6.1 Overview

MTC is seeking input on potential approaches and considerations for the delivery of C2, focusing on two primary elements: the C2 system integration and the C2 CSC and its operation. MTC welcomes feedback on different or innovative approaches that have the potential to provide a more effective system, reduce cost, reduce risk and/or accelerate the schedule.

Key goals that have been defined for C2 include:

1. Provide excellent, proactive **customer service** that is efficient, intuitive and familiar.
2. Ensure transparent, efficient and cost-effective program **governance** that minimizes risk.
3. Support **data-driven operations** that are flexible, responsive, efficient and reliable.

6.2 C2 System Integrator

The C2 System Integrator is expected to be the entity that delivers the core fare collection and associated systems, operates and maintains the systems and software, and manages the configuration and refresh of the system through its life cycle, and integrates and manages third party suppliers and components. The C2 System Integrator is expected to be an entity or consortium with demonstrated experience in multi-agency transit fare collection projects, with the depth of

capabilities and resources needed to not only deploy C2, but operate it effectively and maintain the condition of all assets and manage supplier relationships through an expected operating phase of 10-15 years.

The C2 System Integrator is also expected to work on a partnership basis with MTC and the partner transit operators to finalize approaches to meeting C2 system requirements based both on the requirements themselves and the capabilities of the systems and suppliers brought forward by the C2 System Integrator. This concept is still under exploration and comments and concepts are invited in Section 10.

6.3 C2 CSC Contractor

A key objective of C2 is to deliver high quality customer service that acknowledges the way in which customers purchase products and obtain information today, and that makes maximum use of commercial or commonly used customer information systems and tools that provide a consistent, user-centric experience. MTC is considering alternative approaches for the CSC Contractor scope that could potentially include contracting with a third-party CSC operator to operate customer service systems provided by the System Integrator; contracting with a third-party CSC operator both to provide the customer service systems and to operate the CSC itself; working closely with the system integrator to integrate those systems with the core fare collection systems, or having the systems and services be provided directly by the C2 System Integrator.

6.4 Relationship to C2 Equipment and Other Suppliers

Prior to issuance of any RFP for C2 System Integrator services, MTC anticipates pre-qualifying selected sub-suppliers including potentially fare collection equipment suppliers and CSC Contractors. The C2 System Integrator would be required to bring suppliers from the prequalified list, and in the case of fare collection equipment suppliers would need to bring at least two alternative suppliers.

MTC anticipates that potential C2 System Integrators would be allowed to submit their own equipment or services for prequalification and would not be excluded from proposing their own equipment and services or those of other suppliers for the final RFP, provided that the suppliers have been prequalified.

7.0 Technical Description

C2 is envisioned as a modern, highly-modular system that is constantly refreshed and maintained current without the need for major, wholesale system changes when equipment or software reaches end-of-life or as new technologies emerge.

A draft Life Cycle Concept is attached to this RFEI as a reference document. The draft Life Cycle Concept embodies key C2 principles and concepts including:

- Maximizing self-serve options for customers to purchase fare media and obtain customer support;

- Providing, as much as possible, seamless transitions for customers and the partner transit operators moving from the current Clipper® system to C2;
- Providing effective and transparent operation and management of the system, and effective operational, financial, security and other controls;
- Providing greater capabilities for the partner transit operators to manage their own fare rules, providing consistent customer service, making better use of data, and providing choices in equipment;
- Recognizing that C2 will continue to grow and evolve over time, and that fundamental provisions should therefore be put in place to allow staged replacement of systems and devices over time to reduce the risk and impact of a “forklift” system replacement in the future; and
- Being able to proactively manage C2 through automation and data-driven decisions.

The draft Life Cycle Concept document describes, through a series of capability statements, what C2 will ultimately need to deliver in terms of the initial deployment, ongoing operation, and life cycle replacement or expansion of systems and services. Once finalized, it is the intent that the Life Cycle Concept will form the basis for subsequent requirements definition so comments and feedback on the concepts embodied therein are encouraged.

8.0 Cost and Schedule

MTC welcomes Respondents’ input on ways to reduce whole-life-cycle costs of either or both the C2 System Integrator work scope, the C2 CSC Contractor work scope, or both, as well as strategies to accelerate schedules and/or reduce risk and delay.

9.0 Funding

MTC’s long-term funding sources for C2 consist of federal funding, local matching funds and other operating funds. For purposes of this RFEI, Respondents should assume that federal, state and local funding will all be used.

10.0 Expressions of Interest

10.1 Formatting

MTC requests that each EOI comply with the following requirements:

10.1.1 Documents should be prepared in single-spaced type, 12 point font, on 8-1/2” x 11” sheets printed double-sided. A page is considered to be a single side of an 8-1/2” x 11” sheet. Should the Respondent wish to submit materials that benefit from larger format paper sizes such as charts, drawings, graphs and schedules then they should do so sparingly.

10.1.2 Pages should be numbered at the bottom to show the page numbers and

total number of pages in the response (e.g., Page 1 of 25, Page 2 of 25, etc.).

10.1.3 MTC requests that your EOI be limited to 50 or fewer pages.

10.1.4 Brochures and miscellaneous materials should not be submitted.

10.1.5 The EOI should be divided into sections and each section be presented in the same order as they appear in this RFEI.

10.1.6 The EOI should be submitted by the due date and time listed in Section 3.0 of the RFEI, though EOIs received after that date may still be considered.

10.2 Transmittal Letter

The EOI should be transmitted with a letter that should specify a contact person for the Respondent. The contact information should include the following: name, title, address, email and telephone number. The transmittal letter should specify whether the Respondent is submitting its EOI individually or as part of a joint venture or consortium. If the Respondent is submitting its EOI as part of a joint venture or consortium, then it should identify all of the joint venture or consortium members, if known. Definition of a likely joint venture or consortium is not required in order to submit an EOI, however.

10.3 Firm Experience and Team Structure

The EOI should clearly detail how the Respondent meets the evidence of experience for the C2 System Integrator, the evidence of experience for the C2 CSC Contractor, or both, listed in Section 4.0. Respondent may also provide additional information on its relevant experience with similar projects and similar services.

To the extent that the Respondent is submitting an EOI as part of a joint venture or consortium, then the EOI shall include a description of the proposed team structure, including what strengths and experience each entity brings to the overall team.

10.4 Project Approach

MTC would like to know whether each Respondent is interested in bidding as the C2 System Integrator, the C2 CSC Contractor, or both, in future procurements, as well as any recommendations for improvement to delivery strategies.

The EOI shall include a description of how the Respondent will approach the applicable project scope, how its approach will meet the goals and objectives of MTC, and the hurdles that will need to be overcome to deliver the project(s) on time and on budget.

This section of the EOI shall also include any innovative ideas for delivering one or both of the projects.

10.5 Responses to Questions

The majority of the EOI should respond to the questions below. MTC is very interested in the feedback provided by industry in response to these questions and encourages Respondents to respond in detail. Respondents are not required to answer all questions, but Respondents are encouraged to answer any/all questions where they can provide industry insight and/or input.

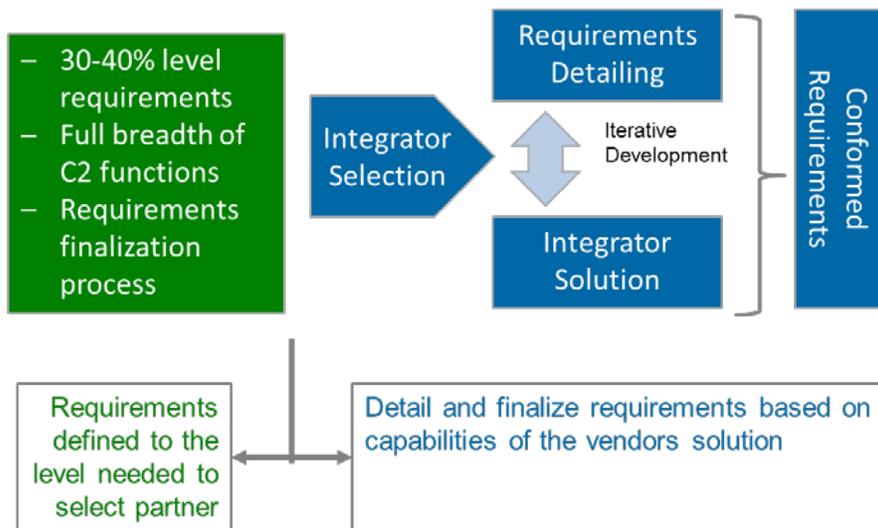
10.5.1 Procurement and Contractual Questions

1. MTC is considering a delivery strategy that would involve prequalification of potential bidders through a Request for Qualifications, followed by a Request for Proposals from pre-qualified bidders. Further, MTC is considering requiring proposers for the C2 System Integrator role to select from a pre-qualified list of providers of certain elements of the system including potentially some or all of:
 - The CSC systems and customer relationship management system;
 - The staffing and operations of the CSC; and/or
 - The supply of fare collection equipment from two or more pre-qualified providers.

If the proposer for C2 System Integrator is on the pre-qualified list of providers in one or more of these areas, it will be permitted to propose performing that work itself. MTC is also open to requiring pre-qualification in other specialty areas that might fall under the overall C2 System Integrator scope, such as mobile payment options, customer websites, and sales networks.

- a. Please comment on this tentative delivery strategy, whether from the perspective of the C2 System Integrator, subsystem or service provider, or both. Please comment on which of the components listed above your firm would propose to provide directly or through a sub-contract or independent third party.
- b. Is the delivery strategy likely to provide benefits to the project such as overall risk reduction, minimization of whole-life costs, acceleration of schedule, and/or a better product? If so, please describe how. If not, please recommend changes to the delivery strategy and describe how those changes will better maximize innovation and provide benefits.
- c. Does the delivery strategy appropriately allocate the integration and interface risks associated with delivering and operating the C2 System? What are the key risks that should be borne by MTC? What are the key risks that are most appropriate to remain with the private sector? What risks should remain with the public sector, and how could they best be managed?
- d. Are there any other components of the C2 System Integrator role that should be carried out by prequalified providers? If so, how will this approach help meet MTC's objectives as stated in this RFEI?

- e. Does the delivery strategy as described above expand or limit potential teaming capabilities? Does it increase or reduce competition relative to a conventional design-build-operate-maintain delivery where the proposer defines its own team, if any?
 - f. What would you consider to be a reasonable timeframe to deliver an operating C2 system, and what would be your recommended phasing or staging strategy?
2. MTC is considering a delivery strategy that would present potential C2 System Integrator bidders with a high-level set of system requirements that would cover all aspects of system operation, but would only be to the first or second level of definition (representing roughly 30-40% of the engineering work required to complete the detailed requirements). For example, requirements related to reporting would describe that reports would be required, and would in general specify the types of reports required (e.g. ridership, revenue, audit, security, etc.), but would not specify details of what is to be provided in the reports. Such details instead would instead be determined through an iterative requirements finalization process with the System Integrator, MTC, partner transit operators, and consultant to align requirements with the capabilities of the integrator’s solution as illustrated below:



The concept behind this delivery strategy is to look at ways of reducing new development work by entering into a dialogue with the C2 System Integrator to identify opportunities to use existing solutions or off-the-shelf software to reduce cost, risk or time. This would allow MTC and the partner transit operators to make informed decisions as to where new development investments should be made or where an alternative approach may satisfactorily address a fundamental need even if somewhat differently than originally anticipated.

Potential C2 System Integrators would be asked to provide an approach and a range of prices for implementation. After award, the contractor selected as the C2 System Integrator would work with MTC and the partner transit operators to finalize the system design and provide a final price for delivering the system that is within the price range proposed prior to award.

- a. Please comment on this tentative delivery strategy. Is it a model that is of benefit and is likely to succeed, and does it present an acceptable risk profile to potential bidders? What provisions could be included in the contract to ensure that the successful integrator will deliver the project within the established range of prices and adequately meet the stated functional requirements?
 - b. Would a “design competition” prior to contractor selection be preferable to selection based on a range of prices? Under this approach, a solicitation and a selection process would be followed to identify two to four qualified C2 system integrators, and a small stipend provided for the integrators to establish a working version of their system to demonstrate how it would meet the C2 requirements.
 - c. Would incentives, such as shared savings where the final price is lower than the mean or median proposal price, be an appealing addition to this delivery strategy? Please describe any other incentives MTC might wish to consider.
 - d. How much time should be allowed for finalizing system requirements after award, and what potential does this approach offer to accelerate schedule, deliver a better product or reduce risk for both the System Integrator and MTC?
 - e. What are the potential pitfalls of this approach?
3. Clipper® equipment has primarily been provided by Cubic through MTC’s DBOM contract with Cubic. MTC is considering having the C2 System Integrator identify two or more equipment suppliers from a list of prequalified equipment suppliers (see Section 6.4 for detail on that process) that will be supported through C2 back-end integration. Please comment on this tentative delivery strategy. Is it a model that is of benefit and is likely to succeed, and does it present an acceptable risk profile to potential bidders?
 4. Mobile applications are increasingly in demand by customers, but the landscape and providers in this area are constantly changing. Recognizing that C2 will operate for many years and that mobile technology will continue to evolve, what approaches should be considered for both provision of C2 mobile applications and integration with mobile applications provided by others, considering not only fare transaction processing, but also mobile sales of products to reduce demands on other sales channels? What are the potential risks with opening up C2 to third party mobile providers not provided by the integrator, how could these risks be mitigated, and what would the C2 System Integrator’s role be in maintaining the consistency, performance and security of those applications?
 5. What is the appropriate contract term for the potential C2 System Integrator contract? Should the C2 CSC have a different contract term? Will extending or reducing either contract term allow for more appropriate sharing of risk with the private sector? Do you recommend a different delivery model than those proposed in this RFEI for the C2 System Integrator or the C2 CSC Operator? If so, what are they and what would be the appropriate term for that/those contract(s)?
 6. C2 is expected to be a flexible system that will evolve over time and at all times remain current. As such, MTC, the partner transit operators, consultants and third party developers may have a need to not only use the system, but also directly maintain and update certain

elements, create derivative works, open up certain interfaces to third parties, provide some elements as open source software, and maintain the right to transfer the operations and maintenance of the system to a new Contractor at the end of the contract term. To support these needs, what software and intellectual property licensing models would you propose? Would you have any concern with granting and causing your subcontractors to grant MTC a nonexclusive, royalty-free, irrevocable, perpetual, assignable license to use, copy, modify, create derivative works based on, publish, or disclose C2 software (including without limitation source code and source code documentation for such software) for the benefit and operation of the C2 project, where MTC may exercise its license through a sublicense to a third party, without need for your further approval? If so, please explain. What restrictions would you propose be applied to any pre-existing software provided for C2?

7. MTC is considering requiring the C2 System Integrator to guarantee payment to partner transit operators of fares for rides taken on their systems using C2, perhaps subject to an annual cap. Would that be an acceptable risk for the C2 System Integrator to take on? Please comment.
8. MTC is considering alternative approaches for the CSC that could potentially include contracting with a third-party CSC operator to operate customer service systems provided by the C2 System Integrator; contracting with a third-party CSC operator both to provide the customer service systems and to operate the CSC itself; working closely with the C2 system integrator to integrate those systems with the core fare collection systems, or having the systems and services be provided directly by the C2 System Integrator. What are the potential advantages, disadvantages and risks associated with these potential approaches? Which of these approaches, or which alternative approach, might best support MTC's goals for C2 customer service as stated in this RFEI?
9. To what extent could or should the C2 system integrator and/or customer service provider be involved in the marketing, public education, or messaging regarding a new fare collection system, particularly if the new system requires or encourages changes to customer behavior? What (if any) methods or techniques have you used to identify customer needs and expectations, design or configure fare system elements to meet those needs, and accommodate the needs of special communities such as senior, disabled, unbanked, low-income, limited English proficient, and bicycle users?

10.5.2 Funding and Financing Questions

1. MTC has used Key Performance Indicators (KPIs) in the past to incentivize excellent service to Clipper® customers, MTC and partner transit operators. For key projects with critical timeframes, MTC has also used financial bonuses and penalties to incentivize timely performance. MTC would also consider sharing cost savings as a result of contractor-initiated value engineering or process improvements. Please comment on the relative strengths and weaknesses of these contractual incentives and penalties if MTC's goal is excellent service to C2 customers and key stakeholders. Are there other incentives or penalties that MTC should consider, and if so, what are their relative strengths and weaknesses in light of this goal?

2. Given the delivery approach and available funding sources, is a cost incentive payment mechanism appropriate for the C2 System Integrator?

10.5.3 Life Cycle Concept Questions

1. The draft Life Cycle Concept assumes that multiple payment gateways will be supported with credit/debit transactions routed to a specific gateway based on partner transit operator. In some cases the C2 back end will need to communicate with multiple payment gateways depending on the operator, and in others the operator may communicate directly with the gateway without going through the C2 back end. Does this propose any particular technical or operational challenges?
2. The use of open and standardized interfaces, architecture and commercial, off-the-shelf (COTS) hardware and software is fundamental to C2, but fare collection systems deployed to date have in practice embraced open standards only to a limited degree, often confusing the adoption of true open standards and architecture with the provision of vendor-specific interface documents. Which industry standards do you believe could be applied to C2 and why? What do you see as the opportunities to use commodity or COTS hardware and devices in lieu of purpose-built transit fare collection devices?
3. C2 is expected to include both capital and operational cost items. Beyond the traditional approaches of public agency pay-as-you-go or public agency financing of those costs, what other funding or financing models could be considered? What are the key strengths and weaknesses of such alternate approaches?
4. In an account-based system, there is the potential to associate multiple forms of fare media with a single account, such that a rider might use a card one day, a phone the next day, and a watch or other technology another day, with all transactions posted to the same account. Is this a feature that you have or are exploring, and, if so, what advantages, disadvantages and risks does this concept pose from a customer, operations and financial controls perspective? Are there any additional risks or disadvantages in a gated, tap-in/tap-out transit operation – e.g., one form of media used to tap-in and another to tap-out, or two different customers accessing the same account?
5. Recent experience with account-based systems has highlighted certain weaknesses and risks such as first tap risk, reliance on a robust online communications network often operated by third parties, challenges with obtaining real-time transaction authorization in the times normally specified in these systems, limitations on transaction information available to customers at the point of use, and challenges with managing list sizes. What provisions can be considered by the partner transit operators to mitigate against first tap risk or management of large action lists? What do you see as the strengths, weaknesses and operational of a “post-pay” model where verification that the account is funded may not be confirmed until after the fare transaction has occurred? How can any negative impacts on revenue or operations be mitigated?
6. Consideration is being given to implementing a “hybrid” system that would combine the best features of card-based operations (e.g. immediacy of authorization) and account-based

operations (e.g. ability to centrally manage business rules and accept a variety of tokens). What do you consider to be the key advantages and disadvantages of card-based and account-based operations? From your perspective, how feasible is a hybrid approach and how would you define it considering that it could range on one end of the spectrum from writing a small amount of data to the C2 media, to running parallel operations of both card and account-based technologies on the other end of the spectrum? If both card- and account-based operations were supported, how would you reconcile transactions if both card-based payment media and account-based payment media were tied to a common central account (e.g. if a customer used both a C2 card and mobile phone for payment)?

7. How do you see tokenization of C2 fare media being implemented in both account-based and card-based operations, and what advantages and disadvantages does tokenization provide?
8. Clipper is considering limited use (LU) contactless fare media and is interested in knowing how LU tickets could be supported in an account-based, multi-agency system considering that these tickets would not likely be registered to a rider's account. What alternatives to LU tickets would you recommend to serve single-fare rides, visitors, etc.?
9. A key risk in any fare collection system, particularly an account-based system, is dependency on the communications network that is often provided by third parties.
 - a. What communications architecture would you recommend? Would your system support a mix of communications networks with some provided through by the partner transit operators with a back-end site-to-site interface, and others with a direct connection to the C2 back-end?
 - b. What performance requirements would need to be met by the communications network to support your solution given the need to communicate with buses, garages, rail stations, vending machines, gates, handheld validators, and other devices?
 - c. Where would elements of the system require redundant communications to maintain operations without interrupting passenger flow?
 - d. How would your system monitor device communications performance to maintain operations and mitigate against first tap risk and other impacts? How would your system provide notification to the entity responsible for the communications network segment (i.e., C2 operator or possibly a partner transit operator) of communications issues?
10. Many bus operators are deploying advanced onboard systems that interface all onboard devices with a common communications platform, while other bus operators have no communications platform. How would communications options for different types of bus operators be provided?
11. For selected partner transit operators, fare collection devices may need to first interface with an individual partner transit operator's proprietary, equipment-level back-end system, and from there to the C2 back end. Direct communications between the C2 back end and the

devices is not anticipated. Does this pose any specific concerns or challenges with respect to the operation and performance of C2?

12. BART operates a distance-based fare system where customers tap in and tap out at faregates. During peak periods individual faregates can process in excess of 30 persons per minute, and the fare for a trip can be in excess of \$12. In account-based operations how would your system handle fare payment and mitigate risk of loss where the customer a) has insufficient funds in their central account to enter the system, or b) has sufficient minimum funds to enter the system but insufficient funds to pay for the full trip and exit the system? How would that process function in the event that the communications network was unable to reliably or consistently support real-time transaction authorization? How would that process function in the event of a long term (hours or days) communications interruption?
13. Are there options available for C2 customers to add value while in the fare paid zone of a gated rail system that would not require the installation of extensive infrastructure such as add-value machines?
14. The partner transit operators would like to self-manage fare prices and business rules to the extent possible. What level of self-management would be appropriate, what functions should be centralized, and what levels of control should be in place?
15. Given the experience to date with the use of open payment in the transit industry, what are your views on how applicable this technology is on a going-forward basis, particularly considering the emergence of new mobile options and token-based payment methods, and concerns and challenges regarding maintaining PCI compliance? How will proliferation of Europay MasterCard VISA (EMV) Contactless affect open payment?
16. It is anticipated that C2 will include certain financial and reporting functions such as general ledger, accounts receivable, accounts payable, maintaining a chart of accounts and reporting. What is your preferred accounting/financial system technology and/or package solution for supporting these types of features, and what are the main tradeoffs from your perspective of using an off-the-shelf accounting package, a hosted package, or a custom solution? In your system, how are accounting functions integrated with payment media management, account management, point of sale, settlement, order management, cash management, banking, collection, billing, credit card processing system reconciling, and reporting?
17. Clipper® is currently provided through a DBOM contract with Cubic. That contract currently terminates on November 2, 2019 and contemplates at least a nine-month transition to a successor system operator leading up to that date. One option MTC is interested in exploring is having the C2 System Integrator take over current Clipper® system operations and maintenance while also designing and implementing C2. Is that a viable operational strategy? If so, please describe the benefits and risks of that approach and what would be needed in any transition strategy to support such a handover.
18. A major challenge for C2 is to effect the transition of customers from Clipper® to C2 with the minimum disruption possible. This is complicated by the fact that installation of two sets of equipment (old and new) would be very challenging and potentially infeasible for some operators, yet those same operators would need to accommodate for a period time both

customers with “old” Clipper® cards and new C2 media. What approaches should be considered to minimize transition disruption? Should consideration be given to migrating existing Clipper® accounts to C2, or should customers set up new accounts in C2 and simply use up their old Clipper® funds? What are the main customer impacts that will need to be considered in the transition strategy?

19. Rail and ferry operators in the Bay Area currently operate fare collection equipment (validators, faregates, vending machines, add-fare machines, etc.) that will not be feasible to replace in C2. How would the C2 System Integrator see integrating C2 with agencies such as BART and SFMTA (Muni) that currently maintain a comprehensive fare collection system infrastructure?
20. Some regional transit operators are not currently participants in the Clipper® system but may provide service into areas where the local transit agencies are equipped to accept Clipper®. What features or functions should be considered in C2 to accommodate transfers from partner transit operators that are equipped with C2 validation devices to other regional transit operators that are not (and vice versa)? Examples include transfers from VTA or BART to Capitol Corridor or the Altamont Corridor Express services that are not currently equipped to accept Clipper®.
21. Handheld inspection and fare payment devices continue to be a challenge to procure and maintain in fare collection projects. What opportunities and risks do you see to using readily-available iOS, Android or other devices for fare inspection and, in some cases, fare processing?
22. Each partner transit operator will need to be able to validate fare sales and use on their system against that reported by the central system. How would your system support this?
23. Increasingly services and products are available “as a service”. Examples include software, data storage, and business process as a service. Which of the capabilities identified in the draft Life Cycle Concept could MTC consider acquiring “as a service” and why?
24. Customers can currently use Clipper® cards to pay for parking at certain partner transit operator parking facilities, and the region is interested in using C2 for bikeshare and other select third-party services. What has been your experience with including such third-party services in a fare collection system and how realistic is it to expect a transit fare payment system to handle these ancillary services? What are the key trade-offs or impacts to be considered such as cost, delivery time or risk?
25. The C2 retail network will play an important role in the successful adoption of C2 by transit users in the Bay Area; however the approach of providing dedicated hardware reload devices is not being considered due to the cost and effort associated with installing and maintaining them. C2 is instead considering either a “bring your own device” approach where a secure sales and reload application is loaded on a tablet computer provided by the retailer, or using a third party gift card or other point of sale network service. What are the opportunities and challenges associated with both of these options, and what does the integrator envision as the best approach for C2 to maximize retail coverage throughout the

Bay Area? Are there any specific concerns or challenges with the “bring your own device” concept?

26. C2 is expected to include a robust set of maintenance and asset management functionality, and also (where applicable) integrate with existing maintenance and operations systems so that that a partner transit operator can work within its own computerized maintenance management systems to monitor, maintain and refresh assets. What features and capabilities are available in your system to monitor and manage system assets, and to what degree is such monitoring and management automated? What capabilities exist to interface with third party maintenance management systems and what level of system updates (if any) would be required to allow MTC and the partner transit operators to manage device maintenance through their own, existing computerized maintenance management systems?
27. What mechanism do you recommend for offering targeted, time-limited, promotional fares? In the context of special family or group fares, what are the technical options, if any, to confirm that families or groups are traveling together? For example, are there any options for families or groups to link their accounts to qualify for special offers when they travel together?
28. Electronic payment is an integral part of public and private transportation in California, and opportunities exist to help create a seamless experience for users traveling throughout the state regardless of jurisdiction or mode. What opportunities do you see for C2 to help provide that seamless experience? What features are available in your system to support interoperability with transportation services that may already have their own established payment system? What opportunities do you see for customers to have a single “transportation account” that could be used to pay for a variety of services statewide and how could C2 fit within that concept?

10.5.4 Cost and Risk Questions

1. Describe how either or both of the delivery strategies described in questions 1 and 2 under 10.5.1, Procurement and Contractual Questions, could be leveraged to reduce costs, speed delivery, or both. Are alternative delivery strategies more likely to reduce costs or speed delivery of the C2 project? If so, please provide examples, where possible, of analogous projects and their cost and/or schedule savings from such delivery model(s).
2. How would either or both of the delivery strategies described in questions 1 and 2 under 10.5.1, Procurement and Contractual Questions, compare to individually procuring all components for the system (i.e., one DBOM)? Please discuss design costs, operating/maintenance/lifecycle costs, and schedule implications. Please discuss what capabilities would be required of MTC’s project management team to ensure success of these strategies. What do you need from MTC project management team to support success?
3. For each project component, are there any technical changes to the respective scope of work that would yield cost savings and/or schedule acceleration while still achieving MTC’s objectives? If so, please describe.

4. MTC and the partner transit operators are interested in understanding opportunities for reducing the lifecycle cost of the C2 program. What are the main cost drivers for this type of fare payment system, how does your solution collect data on those to better monitor them, and how does it help minimize them? What mechanisms or incentives should be considered to promote efficiencies and cost savings over the life of the system?
5. How much should MTC and the partner transit operators budget for the C2 system integrator portion of the work?
6. What opportunities do you see for using third-party and open source applications to deliver C2 more effectively?

10.6 Conflict of Interest

Identify any conflicts of interest, based on a review of MTC’s Organizational Conflict of Interest Policy (see reference documents), and describe how such conflicts were and/or will be mitigated for purposes of this RFEI. If none, state “Not Applicable.”

11.0 MTC’s Standard Procurement Policies

Respondents are advised to review the following specific MTC and Clipper®-specific policies and agreements, as they are likely to be included in or factored into the terms and conditions of any contract resulting from any future procurement issued by MTC:

1. Disadvantaged Enterprise Program
2. MTC’s Organizational Conflicts of Interest Policy
3. MTC’s Personally Identifiable Information (PII) Requirements
4. MTC Resolutions 3866 and 3983
5. Amended and Restated Clipper® Memorandum of Understanding
6. Applicable State and Federal Requirements
7. Draft Life Cycle Concept

Links to these documents are provided in the Reference Documents section of this RFEI.

REFERENCE DOCUMENTS

Reference Documents	Link
Funding and Governing Statutes/Agreements	
Amended and Restated Clipper® Memorandum of Understanding	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
Informational Documents	
Draft C2 Concept of Operations and Lifecycle Concepts	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
MTC Resolutions	
MTC Resolution 3866	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
MTC Resolution 3983	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
MTC Procurement Documents	
Disadvantaged Business Enterprise (DBE) Program	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
Organizational Conflicts of Interest Policy	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
Applicable State and Federal Requirements	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245
Personally Identifiable Information (PII) Requirements	Posted along with the RFEI on the MTC website at http://bids.mtc.ca.gov/procurements/245