



Yuma County Intergovernmental Public Transportation Authority

2715 East 14th Street, Yuma, AZ 85365-1900, Telephone: 928-539-7076
Fax: 928-783-0309, email: info@ycipta.az.gov, Web: www.ycipta.az.gov

NOTICE AND AGENDA OF THE REGULAR MEETING THE BOARD OF DIRECTORS OF THE YUMA COUNTY INTERGOVERNMENTAL PUBLIC TRANSPORTATION AUTHORITY

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the Board of Directors of the Yuma County Intergovernmental Public Transportation Authority ("YCIPTA") and to the general public that the Board of Directors will hold a meeting on:

MONDAY, September 26, 2016 – 1:30 PM
Yuma County Department of Development Services – Aldrich Hall
2351 West 26th Street -- Yuma, AZ, 85364

Unless otherwise noted, meetings held at the above location are open to the public.

The Board of Directors may vote to go into executive session during the noticed meeting concerning any of the agenda items mentioned below. If authorized by the requisite vote of the Directors, the executive session will be held immediately after the vote and will not be open to the public. The executive session, if held, will be at the same meeting location set forth above. The discussion may relate to confidential legal advice or counsel permitted pursuant to A.R.S. §§ 38-431.03(A)(3). The Chairman or other presiding officer shall instruct the persons present at the executive session regarding the confidentiality requirements of the Open Meeting Laws.

Pursuant to the Americans with Disabilities Act, reasonable accommodation requests may be made by contacting the Transit Director at 928-539-7076, ext 101 (TTY/TDD - Arizona Relay Service 711). Requests should be made as early as possible to allow time to arrange the accommodation.

The agenda for the meeting is as follows:

CALL TO ORDER

PLEDGE OF ALLEGIANCE

CALL TO PUBLIC: The public is invited to speak on any item or any area of concern that is within the jurisdiction of the YCIPTA Board of Directors. The Board is prohibited by the Arizona Open Meeting Law from discussing, considering or acting on items raised during the call to the public, but may direct the staff to place an item on a future agenda. Individuals are limited to a five minute presentation.

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

CONSENT CALENDAR: The following items listed under the Consent Calendar will be considered as a group and acted upon by one motion with no separate discussion, unless a board member so requests. In that event, the item will be removed for separate discussion and action.

1. Adopt the July 25, 2016 regular minutes. Pg. 4

DISCUSSION & ACTION ITEMS:

1. Discussion and or action regarding the YCIPTA Disadvantaged Business Enterprise Program. Action required. Pg. 8
2. Discussion and or action regarding the YCIPTA/Quechan MOU Exhibit A Amendment Six. Action required. Pg. 45
3. Discussion and or action regarding the Intergovernmental Agreement between Town of Quartzite and YCIPTA for the Purposes of Coordinating Transit Services. Action required. Pg. 49
4. Discussion regarding the Transit IDEA 79 Project – Implementation of Smart Card Automatic Fare Collection (AFC) Technology in Small Transit Agencies for Standard Development. No action required. Pg. 59
5. Discussion and update regarding vehicle audit and maintenance issues. No action required. Pg. 93

PROGRESS REPORTS:

1. Operations Manager Report – George Rodriguez, National Express Operations Manager. *No action is required. Provided at meeting*
2. Transit Director Report – Shelly Kreger, YCIPTA Transit Director. *No action is required. Pg. 95*
3. Transit Ridership & Customer Comment Report – Carol Perez, Management Analyst/Mobility Manager *No action is required. Pg. 96*
4. Financial Report – Chona Medel, YCIPTA Financial Services Operations Manager. *No action is required. Provided at meeting.*

SCHEDULE NEXT MEETING DATE AND IDENTIFY AGENDA ITEMS:

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
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Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

The next Board meeting is scheduled for Monday, October 24, 2016. Staff is proposing cancelling this meeting as the Transit Director will be out of town.

ADJOURNMENT

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
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Shelly Kreger, Transit Director

The Yuma County Intergovernmental Transportation Authority (YCIPTA) met in Regular Session on Monday, July 25, 2016 at Yuma County Department of Development Services, Aldrich Hall; 2351 West 26th Street, Yuma, AZ, 85364. The Chairman called the meeting to order at 1:33 p.m.

Members present:

Brian Golding, Sr./Quechan Indian Tribe
Larry Killman/ Town of Wellton
Paul Soto/Cocopah Indian Tribe
Bill Lee/City of Somerton/Secretary
Ralph Velez/City of San Luis
Michael Sabath/Northern Arizona University
Daniel Corr/Arizona Western College

Members Excused:

Susan Thorpe/Yuma County
Greg Wilkinson/City of Yuma

Other Present:

Shelly Kreger/YCIPTA/Transit Director
Carol Perez/YCIPTA/Management Analyst
Chona Medel/YCIPTA/Financial Services Operations Manager
Tiffany Turner/National Express/Operations Manager
Sergio Ortiz/National Express/Maintenance Manager

The Pledge of Allegiance was led by Mr. Golding

CALL TO PUBLIC: There were no public comments made but Call to the public was left open by the Chairman.

CONSENT CALENDAR:

No. 1: Adopt the June 27, 2016 regular minutes.

MOTION (Soto/Sabath): Approve with corrections for scrivener's error

VOICE VOTE: Motion Carries, 7-0 with Ms. Thorpe and Mr. Wilkinson excused.

DISCUSSION & ACTION ITEMS:

No. 1: Discussion and or action regarding the YCIPTA Disadvantaged Business Enterprise Program. Action required.

Document was made in conjunction with Yuma Metropolitan Planning Organization (YMPO), was submitted to Arizona Department of Transportation (ADOT) and Federal Transit Administration (FTA) for approval.

MOTION (Killman/Velez): Approved as presented.

VOICE VOTE: Motion Carries, 7-0 with Ms. Thorpe and Mr. Wilkinson excused.

No. 2: Discussion and or action regarding the updated Public Participation Plan. Action required.

Ms. Kreger stated that only minor changes were made to the existing document such as updating the contact information.

MOTION (Soto/Sabath): Approved as presented.

VOICE VOTE: Motion Carries, 7-0 with Ms. Thorpe and Mr. Wilkinson excused.

No. 3: Discussion and or action regarding the updated Title VI Plan. Action Required.

MOTION (Soto/Sabath): Table item, to be brought before the Board in a future meeting.

No. 4: Discussion and or action regarding the updated Equal Employment Opportunity Plan. Action required

Ms. Kreger stated that only minor changes were made to the existing document such as updating the contact information.

MOTION (Soto/Sabath): Approved as presented.

VOICE VOTE: Motion Carries, 7-0 with Ms. Thorpe and Mr. Wilkinson excused.

No. 5: Discussion and or action regarding the updated Drug and Alcohol Policy. Action required.

Ms. Kreger stated that only minor changes were made to the existing document such as updating the contact information.

Mr. Corr inquired if these documents needed to be updated annually.

Mrs. Kreger stated that these documents are required to be updated every year to every 3 years depending on the document.

MOTION (Soto/Sabath): Approved as presented.

VOICE VOTE: Motion Carries, 7-0 with Ms. Thorpe and Mr. Wilkinson excused.

PROGRESS REPORTS:

No. 1: Operations Manager Report – Tiffany Turner, National Express Operations Manager. *No action is required.*

Ms. Turner presented the report as contained in the member packet, stated that they were fully staffed with drivers but still recruiting for utility and drivers.

Mr. Golding inquired if there were any maintenance issues.

Mr. Ortiz stated that any issues were expected maintenance issues; nothing out of ordinary and nothing in comparison to the previous year.

No action was taken.

No. 2: Transit Director Report – Shelly Kreger, YCIPTA Transit Director. No action is required

Ms. Kreger presented the report as contained in the member packet. Ms. Kreger stated that bus shelters were going to be installed the following week. Three of the shelters would be located at the stop located at Walmart on Avenue B.

Mr. Sabath inquired about the workshops that YCIPTA provides.

Ms. Perez stated that these workshops are intended for inexperienced riders to familiarize themselves with the system. Also, learning to utilize existing riders' tools to facilitate navigation of the system.

No action was taken.

No. 3: Transit Ridership & Customer Comment Report – Carol Perez, Management Analyst/Mobility Manager No action is required.

Ms. Perez presented the report as contained in the member packet.

No action was taken.

No. 4: Financial Report – Chona Medel, YCIPTA Financial Services Operations Manager. No action is required.

Mrs. Medel presented the report as contained in the member packet.

Mrs. Kreger stated that YCIPTA had received the Certificate of achievement for Excellence in Financial Reporting for the Comprehensive Annual Financial Report (CAFR) for the second year in a row.

Mr. Golding stated that this was a great accomplishment. Congrats to Shelly, Chona, and staff.

SCHEDULE NEXT MEETING DATE AND IDENTIFY AGENDA ITEMS:

The next Board meeting is scheduled for Monday, August 22, 2016. Staff is proposing cancelling this meeting as the Transit Director will be out of town.

Mr. Velez inquired regarding when the Title VI would be due.
Mrs. Kreger stated that it was not due until October.

There being no further business to come before the Authority, the Chairman adjourned the meeting at 2:11 p.m.

YUMA COUNTY INTERGOVERNMENTAL TRANSPORTATION AUTHORITY
Adopted this _____, 2016, Agenda Item _____

CAROL PEREZ, Board Secretary



Yuma County Intergovernmental Public Transportation Authority

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September 22, 2016

Discussion and Action Item 1

To: Yuma County Intergovernmental Public Transportation Authority
Board of Directors
From: Shelly Kreger, Transit Director
Subject: Discussion and or action regarding the YCIPTA Disadvantaged
Business Enterprise Program for FY 2016-2017 through 2018-2019

Requested Action: Staff recommends that the Yuma County Intergovernmental Public Transportation Authority (YCIPTA) Board of Directors approve the YCIPTA Disadvantaged Business Enterprise Program for FY 2016-2017 through 2018-2019

Background and Summary: The Board of Directors previously approved the DBE Plan on June 25, 2016 at its regular meeting. The DBE plan that was approved was for two fiscal years, when it should have been for three fiscal years. The plan has been corrected and is being brought forth for approval.

Recommended Motion: That the Yuma County Intergovernmental Public Transportation Authority Board of Directors vote to approve the YCIPTA Disadvantaged Business Enterprise Program for FY 2016-2017 through 2018-2019

Fiscal Impact: None

Legal Counsel Review: None.

Attachments: YCIPTA Disadvantaged Business Enterprise Program for FY 2016-2017 through 2018-2019

For information on this staff report, please contact Shelly Kreger, Transit Director via email at skreger@ycipta.az.gov or call 928-539-7076, extension 101.

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Shelly Kreger, Transit Director

Approved for Submission



Shelly Kreger
Transit Director

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Shelly Kreger, Transit Director



**Disadvantaged Business Enterprise Plan (DBE)
For Projects Funded Through
the Federal Transit Administration (FTA) Program
FY 2016-2017 through 2018-2019**

Prepared by: Yuma County Intergovernmental Public Transportation
Authority

Approved by YCIPTA Board of Directors on July 25, 2016

YUMA COUNTY INTERGOVERNMENTAL PUBLIC TRANSPORTATION AUTHORITY
UNITED STATES DEPARTMENT OF TRANSPORTATION
DBE PROGRAM – 49 C.F.R. PART 26

POLICY STATEMENT

Section 26.1, 26.23 - Objectives/Policy Statement

The Yuma County Intergovernmental Public Transportation Authority (YCIPTA) have established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. YCIPTA receives federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, YCIPTA has signed an assurance that it will comply with 49 CFR Part 26.

It is the policy of YCIPTA to ensure that DBEs are defined in part 26, have an equal opportunity to receive and participate in DOT–assisted contracts. It is also our policy:

1. To ensure nondiscrimination in the award and administration of DOT – assisted contracts;
2. To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
3. To ensure that the DBE Program is narrowly tailored in accordance with applicable law;
4. To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are permitted to participate as DBEs;
5. To help remove barriers to the participation of DBEs in DOT assisted contracts;
6. To assist the development of firms that can compete successfully in the market place outside the DBE Program.

For YCIPTA, the Financial Services Operations Manager has been delegated as the DBE Liaison Officer. In that capacity, the Financial Services Operations Manager is responsible for implementing all aspects of the DBE program. Implementation of the DBE program is accorded the same priority as compliance with all other legal obligations incurred by YCIPTA in its financial assistance agreements with the Department of Transportation as it relates to the Federal Transit Administration (FTA) Section 5307 program. .

YCIPTA has disseminated this policy statement to all of the relative components of our organization. We have distributed this statement to DBE and non-DBE business communities that perform, or are anticipated to perform work for our organizations on DOT assisted contracts. This distribution is accomplished through:

1. Adoption of the program by YCIPTA.
2. Publication available to all interested parties via YCIPTA's website
3. Inclusion in all relative competitive bid documents.



YCIPTA Transit Director

7/26/2016

Date

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SUBPART A – GENERAL REQUIREMENTS

Section 26.1 - Objectives

The objectives are found in the policy statement on the first page of this program.

Section 26.3 - Applicability

YCIPTA are the recipients of federal transit funds authorized by Titles I, III, V and VI of ISTEA, Pub. L. 102-240 or by Federal transit laws in Title 49, U.S. Code, or Titles I, III, and V of the TEA-21, Pub. L. 105-178. Titles I, III, and V of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Pub. L. 109-59, 119 Stat. 1144; and Divisions A and B of the Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. 112-141, 126 Stat. 405.

Section 26.5 - Definitions

YCIPTA will adopt the definitions contained in Section 26.5 for this program.

Section 26.7 - Non-Discrimination Requirements

YCIPTA never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by 49 CFR Part 26 on the basis of race, color, sex, or national origin.

In administering their DBE programs, YCIPTA will not, directly or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the DBE program with respect to individuals of a particular race, color, sex, or national origin.

Section 26.11 - Record Keeping Requirements

Reporting to DOT: 26.11(b)

YCIPTA will report DBE participation to DOT as follows:

YCIPTA will report DBE participation as required under 49 C.F.R. Part 26 for each entity. These reports will reflect payments actually made to DBEs on DOT-assisted contracts.

Bidders List: 26.11(c)

YCIPTA will create a bidders list, consisting of information about all DBE and non-DBE firms that bid or quote on DOT-assisted contracts. The purpose of this requirement is to

allow use of the bidder's list approach to calculating overall goals. The bidder list will include the name, address, DBE non-DBE status, age, and annual gross receipts of firms.

YCIPTA will collect this information in the following ways: requiring prime bidders to report the names/addresses and other pertinent data, of all firms who provide quotes to them for sub-contracts, providing notices in solicitations and posting them on YCIPTA website.

Section 26.13 - Federal Financial Assistance Agreement

YCIPTA have signed the following assurances, applicable to all DOT-assisted contracts and their administration:

Assurance: 26.13(a)

YCIPTA shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT assisted contract or in the administration of its DBE Program or the requirements of 49 CFR Part 26. YCIPTA shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of DOT assisted contracts.

The YCIPTA DBE Programs, as required by 49 CFR part 26 and as approved by DOT, are incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement.

Upon notification to YCIPTA of its failure to carry out their approved programs, the Department may impose sanction as provided for under Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 et seq.).

This language will appear in financial assistance agreements with sub-recipients and sub-contracts.

Contract Assurance: 26.13b

YCIPTA will ensure that the following clause is placed in every DOT-assisted contract and sub-contract:

The contractor, sub-recipient or sub-contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these

requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as YCIPTA deems appropriate.

SUBPART B - ADMINISTRATIVE REQUIREMENTS

Section 26.21 - DBE Program Updates

Since YCIPTA may receive \$250,000 or more in federal funds per fiscal year, YCIPTA will carry out this program until all funds from DOT financial assistance have been expended. YCIPTA will update their respective DBE Programs as required under 49 C.F.R. Part 26.

Section 26.23 - Policy Statement

The Policy Statement is shown at the beginning of this document.

Section 26.25 - DBE Liaison Officer (DBELO)

YCIPTA has designated the following individual as the DBE Liaison Officer:

Financial Services Operations Manager
Yuma County Intergovernmental Public Transportation Authority
2715 East 14th Street
Yuma, AZ 85365
928-539-7076 ext 237
www.ycat.az.gov

In that capacity, the DBELO is responsible for implementing all aspects of the DBE program and ensuring that YCIPTA complies with all provision of 49 CFR Part 26. The DBELO has direct, independent access to the Transit Director of YCIPTA concerning DBE program matters.

An organization chart displaying the DBELO's position in the organization is found in Attachment A to this program.

The DBELO is responsible for developing, implementing and monitoring the DBE program, in coordination with other appropriate officials. The DBELO has sole responsibility for administration of the program. The duties and responsibilities include the following:

1. Gathers and reports statistical data and other information as required by DOT.
2. Reviews third party contracts and purchase requisitions for compliance with this program.
3. Works with all components within YCIPTA to set overall annual goals.
4. Ensures that bid notices and requests for proposals are available to DBEs in a timely manner.

5. Identifies contracts and procurements so that DBE goals are included in solicitations (both race-neutral methods and contract specific goals attainment and identifies ways to improve progress.
6. Analyzes YCIPTA 's progress toward attainment and identifies ways to improve progress.
7. Participates in pre-bid meetings.
8. Advises the Transit Director of YCIPTA on DBE matters and achievement.
9. Participates in pre-bid meetings.
10. Provides DBEs with information and assistance in preparing bids.
11. Plans and participates in DBE training seminars.
12. Acts as liaison to the Uniform Certification Process in Arizona.
13. Provides outreach to DBEs and community organizations to advise them of contracting opportunities.
14. Maintains YCIPTA 's updated directory on certified DBEs that bid on federally funded projects.

Section 26.27 - DBE Financial Institutions

It is the policy of YCIPTA 's to investigate the full extent of services offered by financial institutions owned and controlled by socially and economically disadvantaged individuals in the community, to make reasonable efforts to use these institutions, and to encourage prime contractors on DOT-assisted contract to make use of these institutions. We have made the following efforts to identify and use such institutions: research the credit unions and commercial banks in the community through on site visits and website reviews.

To date we have identified the following such institutions: None

Section 26.29 - Prompt Payment Mechanisms

YCIPTA will include the following clause in each DOT-assisted prime contract:

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contract receives from YCIPTA . The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of YCIPTA . This clause applies to both DBE and non-DBE subcontracts.

Any failure to comply with this section by the prime contractor shall be considered as a breach of the contract, subject to the provisions of the agreement. In addition, the prime contractor will not be reimbursed for work performed by subcontractors unless

and until the prime contractors ensures that the subcontractors are promptly paid for the work that they have performed.

Section 26.31 - Directory

The Arizona Department of Transportation (ADOT) maintains a directory identifying all firms eligible to participate as DBEs in the State of Arizona. The directory lists each firm's name, address, phone number, date of the most recent certification, and the type of work the firm has been certified to perform as a DBE. ADOT regularly maintains the Directory and makes it available online at http://www.azdot.gov/azdbe/DBE_search.aspx .

Further information about Arizona's Uniform Certification Program may be found at <http://www.azdot.gov/azdbe/index.asp> .

Section 26.33 - Overconcentration

YCIPTA has not identified that overconcentration exists in the types of work that DBEs perform.

Section 26.35 - Business Development Programs

YCIPTA has not established business development programs.

Section 26.37 - Monitoring and Enforcement Mechanisms

YCIPTA will take the following monitoring and enforcement mechanisms to ensure compliance with 49 CFR Part 26.

YCIPTA will bring to the attention of the Department of Transportation any false, fraudulent, or dishonest conduct in connection with the program, so that DOT can take the steps (e.g., referral to the Department of Justice for criminal prosecution, referral to the DOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules) provided in 26.109.

YCIPTA will consider similar action under their respective legal authorities, including responsibility determinations in future contracts. Attachment 3 lists the regulation, provisions, and contract remedies available in the event of non-compliance with the DBE regulation by a participant in procurement activities.

YCIPTA will provide a monitoring and enforcement mechanism to verify that work committed to DBEs at contract award is actually performed by the DBEs. This will be accomplished via a reporting mechanism.

YCIPTA will keep a running tally of actual payments to DBE firms for work committed to them at the time of contract award.

SUBPART C – GOALS, GOOD FAITH EFFORTS, AND COUNTING

Section 26.43 - Set-asides or Quotas

YCIPTA does not use quotas in any way in the administration of this DBE program.

Section 26.45 - Overall Goals

A description of the methodology to calculate the overall goal and the goal calculations is provided in Attachment 4 to this program. This section of the program will be updated annually.

In accordance with Section 26.45(f), YCIPTA will submit their overall goals to DOT on August 1 of each year. Before establishing the overall goal each year, YCIPTA will consult with the local Chambers of Commerce and the Arizona Department of Transportation to obtain information concerning the availability of disadvantaged and non-disadvantaged businesses, the effects of discrimination on opportunities for DBEs, and YCIPTA's efforts to establish a level playing field for the participation of DBEs.

Following this consultation, YCIPTA will publish a notice of the proposed overall goals, informing the public that the proposed goals and their rationale are available for inspection during normal business hours at their offices for 30 days following the date of the notice, and informing the public that comments will be accepted on the goals for 45 days from the date of the notice. The notice will be available on YCIPTA or YMPO's website and a local newspaper of general circulation. YCIPTA will issue their respective notices by June 1 of each year. These notices must include addresses to which comments may be sent and addresses (including offices and websites) where the proposal may be reviewed.

YCIPTA overall goal submission to DOT will include a summary of information and comments received during this public participation process and responses.

YCIPTA will begin using our overall goal on October 1 of each year, unless YCIPTA have received other instructions from DOT. If YCIPTA establish goals on a project basis, YCIPTA will begin using the goal by the time of the first solicitation for a DOT-assisted contract for the project.

Section 26.49 - Transit Vehicle Manufacturers (TVM) Goals

YCIPTA will require each transit vehicle manufacturer, as a condition of being authorized to bid or propose on FTA-assisted transit vehicle for YCIPTA procurements, to certify that it has complied with the requirements of this section. Alternatively, YCIPTA may, at its discretion and with FTA approval, establish project-specific goals for DBE participation in the procurement of transit vehicles in lieu of the TVM complying with this element of the program.

Section 26.51(a-c) - Breakout of Estimated Race-Neutral & Race-Conscious Participation

The breakout of estimated race-neutral and race-conscious participation can be found in Attachment 5 to this program. This section of the program will be updated annually when the goal calculation is updated.

Section 26.51(d-g) - Contract Goals

YCIPTA may use contract goals to meet any portion of the overall goal that YCIPTA do not forecast being able to meet using race-neutral means. Contract goals are established so that, over the period to which the overall goal applies, they will cumulatively result in meeting any portion of the overall goal that is not forecast to be met through the use of race-neutral means.

YCIPTA may establish contract goals on DOT-assisted contracts that have sub-contracting possibilities. YCIPTA need not establish a contract goal on every such contract, and the size of contract goals will be adapted to the circumstances of each contract, such as the type and location of work and availability of DBEs to perform the particular type of work.

When contract goals are established, YCIPTA will express contract goals as a percentage of total amount of federal funding in a DOT-assisted contract.

Section 26.53 - Good Faith Efforts Procedures

Demonstration of Good Faith Efforts (26.53(a) & (c))

The obligation of the bidder/offeror is to make good faith efforts to recruit DBE sub-contractors or sub-consultants for federally funded proposals. The bidder/offeror can demonstrate that it has done so either by meeting the contract goal or documenting good faith efforts. Examples of good faith efforts are shown in Appendix A to 49 CFR Part 26.

YCIPTA will ensure that all information is complete and accurate and adequately documents the bidder/offeror's good faith efforts before authorizing the bidder/offeror to proceed with the scope of work.

Information to be Submitted (26.53(b))

YCIPTA treat bidder/offers' compliance with the good faith effort requirements as a matter of responsiveness.

Each solicitation for which a contract goal has been established will require the bidders/offers to submit the following information:

1. The names and addresses of DBE firms that will participate in the contract;
2. A description of the work that each DBE will perform;
3. The dollar amount of the participation of each DBE firm participating;
4. Written and signed documentation of commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;
5. Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractors commitment and
6. If the contract goal is not met, evidence of good faith efforts.

Administrative Reconsideration (26.53(d))

Within 10 days of being informed by YCIPTA that it is not responsive because it has not documented sufficient good faith efforts, a bidder/offeror may request administrative reconsideration.

Bidder/offers should make this request in writing to the following reconsideration official:

Transit Director
Yuma County Intergovernmental Public Transportation Authority
2715 East 14th Street
Yuma, AZ 85365
928-539-7076 ext 2101
www.ycat.az.gov

The reconsideration official will not have played any role in the original determination that the bidder/offeror did not document sufficient good faith efforts.

As part of this reconsideration, the bidder/offeror will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The bidder/offeror will have the opportunity to meet in person with our reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do so. We will send the bidder/offeror a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The result of the reconsideration process is not administratively appealable to the Department of Transportation.

Good Faith Efforts When a DBE is replaced on a Contract (26.53(f))

YCIPTA will require a contractor to make good faith efforts to replace a DBE that is terminated or has otherwise failed to complete its work on a contract with another certified DBE, to the extent needed to meet the contract goal. We will require the prime contractor to notify the DBE Liaison officer immediately of the DBE's inability or unwillingness to perform and provide reasonable documentation.

In this situation, we will require the prime contractor to obtain our prior approval of the substitute DBE and to provide copies of new or amended subcontracts, or documentation of good faith efforts.

If the contractor fails or refuses to comply in the time specified, YCIPTA will issue an order stopping all or part of payment/work until satisfactory action has been taken. If the contractor still fails to comply, the contracting officer may issue a termination for default proceeding.

Sample Bid Specification:

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the [Name of YCIPTA] to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders/offerors, including those who qualify as a DBE. A DBE contract goal of ____ percent has been established for this contract. The bidder/offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26 (Attachment 1), to meet the contract goal for DBE participation in the performance of this contract.

The bidder/offeror will be required to submit the following information: (1) the names and addresses of DBE firms that will participate in the contract; (2) a description of the work that each DBE firm will perform; (3) the dollar amount of the participation of each DBE firm participating; (4) Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal; (5) Written confirmation from the DBE that it is participating in the contract as provided in the commitment made under (4); and (5) if the contract goal is not met, evidence of good faith efforts.

Section 26.55 - Counting DBE Participation

YCIPTA will count DBE participation toward overall and contract goals as provided in 49 CFR 26.55.

SUBPART D – CERTIFICATION STANDARDS

Section 26.61-26.73 - Certification Process

YCIPTA will use the certification standards of Subpart D of Part 26 to determine the eligibility of firms to participate as DBEs in DOT-assisted contracts. To be certified as a DBE, a firm must meet all certification eligibility standards. We will make our certification decisions based on the facts as a whole.

For information about the certification process or to apply for certification, firms should contact:

Arizona Department of Transportation
Civil Rights Office
1135 N. 22nd Ave. 2nd Floor
Phoenix, AZ 85009
(602) 712-7761
<http://www.adotdbe.com/>

City of Phoenix
Equal Opportunity Department
Business Relations Division
251 W. Washington St. 7th Floor
Phoenix, AZ 85003
(602) 262-6790 or
(602) 534-1557/TTY

City of Tucson
Equal Opportunity Office
201 North Stone Avenue, 3rd Floor North
P.O. Box 27210
Tucson, AZ 85726-7210
(520) 791-4593

SUBPART E – CERTIFICATION PROCEDURES

Section 26.81 - Unified Certification Programs

YCIPTA has adopted the Arizona Unified Certification Program (AUCP) administered by the Certifying agencies of the AUCP. The AUCP meets all of the requirements of this section. The following is a description of the AUCP, which can be found at http://www.azdot.gov/azdbe/DBE_search.aspx:

The DBE program is intended to remedy past and current discrimination against disadvantaged businesses. It ensures a “level playing field” and fosters equal opportunity in all Department of Transportation assisted contracts that include highway, transit and airport programs.

The Arizona UCP has been established to facilitate statewide DBE certification. The UCP eliminates the need for DBE applicant businesses to obtain certification from multiple agencies, and provides reciprocity within Arizona. The Arizona Department of Transportation, City of Phoenix, and the City of Tucson are members of the Arizona UCP. The official UCP DBE database includes DBE firms certified by these three agencies. Bidders who are meeting goals on FAA and FTA contracts being let by other in-state entities can only use the DBEs certified by the Arizona UCP.

Section 26.83 - Procedures for Certification Decisions

Re-certifications 26.83(a) & (c)

YCIPTA will review the eligibility of DBEs, to make sure that they will meet the standards of Subpart E of Part 26. YCIPTA will complete this review no later than five years from the most recent certification date of each firm.

For firms that YCIPTA have reviewed and found eligible under 49 C.F.R. Part 26, we will again review their eligibility every five years. These reviews will include the following components: filing out a new application, performing on site visits in YCIPTA local area, and reviewing work history, qualifications and equipment of the firm.

“No Change” Affidavits and Notices of Change (26.83(j))

To the extent as required by the AUCP, YCIPTA require all DBEs to inform us, in a written affidavit, of any change in its circumstances affecting its ability to meet size, disadvantaged status, ownership or control criteria of 49 CFR Part 26 or of any material changes in the information provided with the AUCP’s application for certification.

YCIPTA also requires all owners of all DBEs to submit, on the anniversary date of their certification, a “no change” affidavit meeting the requirements of 26.83(j). The test of this affidavit is the following:

I swear (or affirm) that there have been no changes in the circumstances of [name of DBE firm] affecting its ability to meet the size, disadvantaged status, ownership, or control requirements of 49 CFR Part 26. There have been no material changes in the information provided with [name of DBE]'s application for certification, except for any changes about which you have provided written notice to YCIPTA under 26.83(j). [Name of firm] meets Small Business Administration (SBA) criteria for being a small business concern and its average annual gross receipts (as defined by SBA rules) over the firm's previous three fiscal years do not exceed \$16.6 million.

YCIPTA require DBEs to submit with this affidavit documentation of the firm's size and gross receipts.

YCIPTA will notify all currently certified DBE firms of these obligations. This notification will inform DBEs that to submit the "no change" affidavit, their owners must swear or affirm that they meet all regulatory requirements of Part 26, including personal net worth. Likewise, if a firm's owner knows or should know that he or she, or the firm, fails to meet a Part 26 eligibility requirement (e.g. personal net worth), the obligation to submit a notice of change applies.

Section 26.85 - Denials of Initial Requests for Certification

If the AUCP denies a firm's application or decertify it, it may not reapply until 12 months have passed from the action.

Section 26.87 - Removal of a DBE's Eligibility

In the event the AUCP proposes to remove a DBE's certification, YCIPTA will follow procedures consistent with 49 C.F.R., Section 26.87.

Section 26.89 - Certification Appeals

Any firm or complainant may appeal the AUCP decision in a certification matter to DOT. Such appeals may be sent to:

Department of Transportation
Office of Civil Rights Certification Appeals Branch
400 7th Street, SW
Room 2104
Washington, D.C. 20590

YCIPTA will promptly implement any DOT certification appeal decisions affecting the eligibility of DBEs for DOT-assisted contracting.

SUBPART F – COMPLIANCE AND ENFORCEMENT

Section 26.109 - Information, Confidentiality, Cooperation

YCIPTA will safeguard from disclosure to third parties information that may reasonably be regarded as confidential business information, consistent with Federal, state, and local law.

Notwithstanding any contrary provisions of state or local law, YCIPTA will not release personal financial information submitted in response to the personal net worth requirement to a third party (other than DOT) without the written consent of the submitter.

Monitoring Payments to DBEs

YCIPTA will require prime contractors to maintain records and documents of payments to DBEs for three years following the performance of the contract. These records will be made available for inspection upon request by any authorized representative of YCIPTA or DOT. This reporting requirement also extends to any certified DBE sub-contractor.

YCIPTA will perform interim audits of contract payments to DBEs. The audit will review payments to DBE sub-contractors to ensure that the actual amount paid to DBE sub-contractors equals or exceeds the dollar amounts states in the schedule of DBE participation.

ATTACHMENTS

Attachment 1 - Organizational Chart

Attachment 2 - DBE Directory

Attachment 3 - Monitoring and Enforcement Mechanisms

Attachment 4 - Overall Goal Calculation

Attachment 5 - Breakout of Estimated Race-Neutral & Race-Conscious Participation

Attachment 6 - Forms for Demonstration of Good Faith Efforts

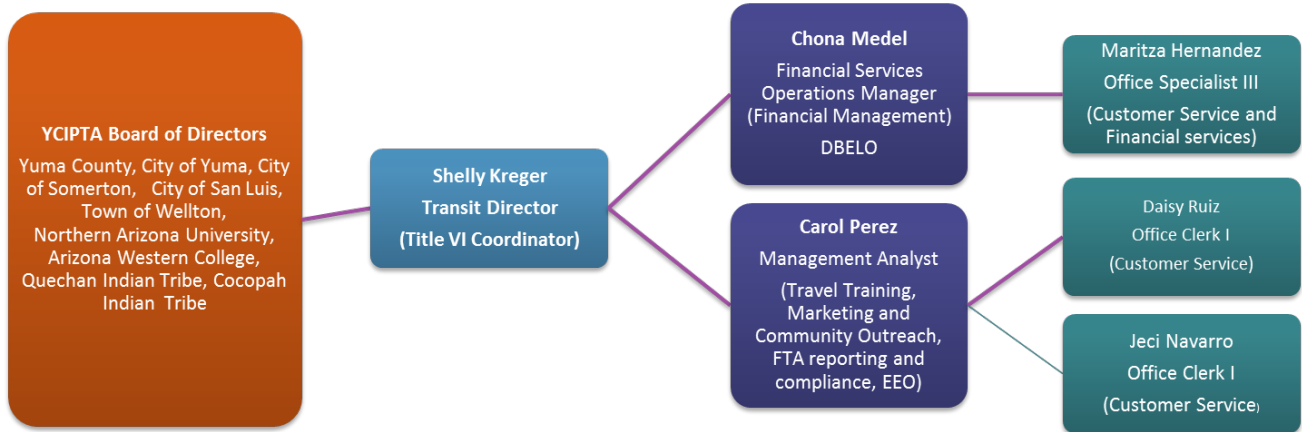
Attachment 7 - Certification Application

Attachment 8 - Procedures for Removal of DBE's Eligibility

Attachment 9 - Regulations: 49 CFR Part 26

Attachment 10 – Small Business Enterprise Program

ATTACHMENT 1 ORGANIZATIONAL CHART



The Financial Services Operations Manager has direct access to the Transit Director as the DBELO Officer for YCIPTA.

ATTACHMENT 2 DBE DIRECTORY

Arizona Unified Certification Program (UCP)

The Arizona UCP has been established to facilitate statewide DBE certification. The UCP eliminates the need for DBE applicant businesses to obtain certification from multiple agencies, and provides reciprocity within Arizona. The Arizona Department of Transportation, City of Phoenix, and the City of Tucson are Certifying members of the Arizona UCP. The official UCP DBE database includes DBE firms certified by these three agencies. Bidders who are meeting goals on FAA and FTA contracts being let by other in-state entities can only use the DBEs certified by the Arizona UCP.

The Arizona UCP DBE directory can be found at
http://www.azdot.gov/azdbe/DBE_search.aspx.

YCIPTA encourage prime contract bidders to search this directory when seeking sub-contractors that are certified as DBEs.

ATTACHMENT 3

MONITORING AND ENFORCEMENT MECHANISMS

YCIPTA have available several remedies to enforce the DBE requirements contained in its contracts, including, but are not limited to, the following:

1. Breach of contract action, pursuant to the terms of the contract
2. Breach of contract action pursuant to Arizona Revised Statutes 44-101
3. Any other enforcement mechanism in law or equity allowable in Arizona.

In addition, the federal government has available several enforcement mechanisms that it may apply to firms participating in the DBE problem, including, but not limited to, the following:

1. Suspension or debarment proceedings pursuant to 49 CFR part 26
2. Enforcement action pursuant to 49 CFR part 31
3. Prosecution pursuant to 18 USC 1001.

ATTACHMENT 4
YCIPTA METHODOLOGY FOR ADOPTING AN
FY 2016-17 THROUGH FY 2018-19 DBE GOAL FOR FTA PURPOSES

Pursuant to Section 49 CFR Part 26, YCIPTA present the following information as it relates to the development of YCIPTA methodology for adopting a DBE contracting goal for FFY 2017 through FFY2019 for contracts funded through the Federal Transit Administration (FTA).

FTA-Assisted DBE Contracting Program for FFY 2017 through FY2019

The following represents YCIPTA projected FTA funded contracts and expenditures by work category and corresponding North American Industry Classification System (NAICS);

Table 1			
Amount of FTA Funding By Category			
<u>Work Category</u>	<u>NAICS Category</u>	<u>Estimated Dollar Value</u>	<u>% of Federal Funding by Work Category</u>
Construction-Specialty Trade	238	1,900,000	24.60%
Wholesale Trade-Non Durable Goods	424	528,700	6.85%
Wholesale Trade-Durable Goods	423		
Retail Trade-Electronics	443	1,519,730	19.68%
Telecommunications	517		
Other Information Services	519		
Transit/Ground Transportation	485	3,351,665	43.40%
Professional Services	541	423,453	5.48%
GRAND TOTAL		7,723,548	100.00%

STEP 1: Determination of Base Figure for the Relative Availability of DBE Firms

Determination of Relevant Geographical Market Area

To establish the Base Figure of the relative availability of DBEs in relation to all comparable firms available for the FFY 2017 through FFY2019 DOT-assisted contracting program, both Census Bureau data and the ADOT DBE Directory were used (filtered to represent only DBE firms within the relevant geographical market area), as follows:

For the numerator: Arizona Department of Transportation (ADOT) DBE Directory
For the denominator: Census Bureau's Business Pattern Database (CBBP).

To derive the Base Figure for the relative availability of DBEs, the number of DBEs available in the ADOT DBE Directory (by NAICS Code), is divided by the number of all comparable CBBP firms (by NAICS Code) available. This ratio is multiplied by the projected expenditures (by NAICS Code proportions). The resulting ratios are then summed. Application of this formula yields the following baseline information:

$$\text{Base Figure} = \sum (\% \text{Projected FFY} - \text{Expenditures by NAICS Code}) \times \frac{\text{Number of All Ready, Willing, and Able Firms by NAICS Code}}{\text{Number of Ready, Willing, and Able DBEs by NAICS Code}}$$

49 C.F.R. Part 26 requires that YCIPTA set goals consistent with its own contracting circumstances. To calculate availability, the relevant geographical market area must first be determined to set overall goals based on demonstrable evidence of the relative availability of ready, willing, and able DBEs. The relevant geographical market area is the area in which the substantial majority of the contractors and subcontractors with which YCIPTA does business with are located and the area in which YCIPTA spends the majority of contracting dollars.

Unique factors affecting the development of the DBE Goal for FY 2017-19 include:

1. Recognition and local knowledge that as a small urban transit system, the majority of the FTA 5307 funds have been used over the years for direct operating costs in these contracts for which limited opportunities exist for DBE participation.
2. Recognition and local knowledge that there is limited DBE participation in the immediate geographic area, According to the ADOT DBE Database, there are only 8 registered DBE firms in all NAICS categories within Yuma County, which presents a significant limitation on YCIPTA opportunities to contract with DBE firms. Consequently, the relevant market area, for the purposes of this analysis, includes all of the State of Arizona to cast the broadest net possible for inclusion of DBE firms in YCIPTA contracting opportunities. The vast majority of DBE firms in the State of Arizona are in Maricopa County, which includes the Phoenix urbanized area, and Pima County, which includes the Tucson urbanized area.

3. The DBE firms certified by the Arizona Unified Certification Program with the most appropriate NAICS classification code (485113 - Bus and motor vehicle transit systems) are generally charter services who are not ready, willing, or able to bid on public fixed route contracts of this size and complexity.
4. There may exist opportunities for the prime contractor (currently National Express Transit) to utilize outside firms to provide necessary materials, supplies, and services under the prime transit operations and maintenance contract. As a prime contractor, the agreement with National Express Transit requires that good faith efforts be made to sub-contract for materials and supplies for vehicle maintenance.

B. Development of the Base Goal Figure

In order to determine an overall goal, the first step is to determine a base figure. The following table contains data on the ratio of DBE firms in the relevant market area based on the ADOT DBE Database and Census Bureau:

<u>Description of the Work</u>	<u>Available DBEs in the Region</u>	<u>Number of All Firms Available</u>	<u>Ratio (%) of DBE to Non-DBE Firms</u>
Construction-Specialty Trade	3	205	1.46%
Wholesale Trade-Non Durable Goods	0	60	0.00%
Wholesale Trade-Durable Goods			
Retail Trade-Electronics	0	125	0.00%
Telecommunications			
Other Information Services			
Transit/Ground Transportation	0	11	0.00%
Professional Services	4	222	1.80%
GRAND TOTAL	7	623	1.12%

Calculating the Base Figure

The Base Figure can be calculated using the information shown in Tables 1 and 2. The percentage that results is obtained by multiplying the percentage of federal funding available for each category by the relative availability of DBEs in that category as follows:

Calculation of the Step 1 Base Figure							
NAICS	Description	# of Firms	# DBEs	%DBE	Est. Per FY	% of All	Step One
					2017-2019	Funding	Funding
238	Construction-Specialty Trade	205	3	1.46%	1,900,000	24.60%	0.4%
424	Wholesale Trade-Non Durable Goods	60	0	0.00%	528,700	6.85%	0.00%
423/443/517/519	Wholesale Trade-Durable Goods; Retail Trade-Electronics; Telecommunications; Other Information Services	125	0	0.00%	1,519,730	19.68%	0.00%
485	Transit/Ground	0	11	0.00%	3,351,665	43.40%	0.00%
541	Professional Services	222	4	1.80%	423,453	5.47%	0.1%
STEP 1 BASE FIGURE TOTALS AND PERCENTAGE					7,723,548	100.00%	0.46%

STEP 2: Adjustment to the Base DBE Relative Availability Figure

Adjustments to the base figure goal may be necessary and justified for a variety of reasons including: lower or higher than expected past participation by DBE firms or additional evidence from disparity studies. Unfortunately, very little data of this sort is currently available to YCIPTA . In past years, FTA funds were spent solely on turnkey operations contracts where there was very limited DBE availability. In addition, no comprehensive disparity study has been or is likely to be conducted in Yuma County.

Consequently, given all of the historic and current data available to YCIPTA and consideration of alternative methodologies for assessing the relative availability of DBE firms, YCIPTA have concluded that there is no reasonable basis upon which to adjust the Step 1 Base Goal of **.46percent.**

Public Participation

YCIPTA published this goal-setting information in the following publications:

- Passenger Transport
- Yuma Sun
- Online at www.ycat.org
-

Comments were received from these individuals or organizations:

- None

Summaries of these comments are as follows:

- Not applicable as no comments were received.

Our responses to these comments are as follows:

- Not applicable as no comments were received.

ATTACHMENT 5
SECTION 26.51: BREAKOUT OF ESTIMATED
RACE-NEUTRAL & RACE CONSCIOUS PARTICIPATION

YCIPTA are entities located within the Yuma small urbanized area with the majority of their FTA funding used for transit operating and maintenance purposes. YCIPTA will meet the maximum feasible portion of their overall DBE goals by using race-neutral means as required in Section 26.51(a). Planned outreach efforts by YCIPTA are all race/gender neutral, and it is anticipated that YCIPTA will accomplish their DBE goals solely through race/gender neutral means.

YCIPTA will use the following race neutral means to increase DBE participation:

1. Arranging solicitations, times for the presentations of bids, quantities, specifications and delivery schedules in a manner that facilitate DBE and other small businesses participation, such as unbundling large contracts to make them more accessible and encouraging prime contractors to sub-contract portions of the work effort.
2. Minimizing bonding requirements while exercising due diligence with public resources.
3. Providing technical assistance as requested.
4. Providing information and printed materials in a bilingual format upon request.
5. Coordinating with resource agencies such as workforce development, small business alliance, chambers of commerce and economic development centers.

In addition, YCIPTA will provide links on their respective web sites to the online training and information resources available from the ADOT Supportive Services Program. The ADOT Supportive Services office provides numerous opportunities for DBE-certified and DBE-eligible firms to learn about contracting opportunities at the state and local levels, and organizes conferences, networking events, presentations, special programs, training, and workshops. Information on these programs is located at <http://www.adotdbbe.com/programs> or http://azdot.gov/Inside_ADOT/CRO/DBEP_SS.asp.

ATTACHMENT 6
FORMS FOR DEMONSTRATION OF GOOD FAITH EFFORTS

FORM 1: DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION

The undersigned bidder/offeror has satisfied the requirements of the bid specification in the following manner (please check the appropriate space):

_____ The bidder/offeror is committed to a minimum of _____ % DBE utilization on this contract.

_____ The bidder/offeror (if unable to meet the DBE goal of _____%) is committed to a minimum of _____% DBE utilization on this contract and has attached documentation demonstrating good faith efforts.

Name of bidder/offeror's firm: _____

State Registration No. _____

By _____
(Signature) Title

ATTACHMENT 6
FORMS FOR DEMONSTRATION OF GOOD FAITH EFFORTS

FORM 2: LETTER OF INTENT

Name of bidder/offeror's firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Name of DBE firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____

Description of work to be performed by DBE firm:

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above.

The estimated dollar value of this work is \$ _____.

Affirmation

The above-named DBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By _____
(Signature) (Title)

If the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

(Submit this page for each DBE subcontractor.)

ATTACHMENT 7 CERTIFICATION APPLICATION FORMS

The certification application forms for the AUCP are found at:

<https://adot.dbesystem.com/FrontEnd/StartVendor.asp?TN=adot&XID=3766> .

All firms must complete a Civil Rights Vendor Registration form. Firms that are eligible for DBE certification may also apply via this system. To be eligible to participate in the DBE program, your firm must be certified pursuant to United States Department of Transportation (US DOT) regulations which can be viewed on this web page. The specific regulations can also be found in 49 Code of Federal Regulation, Part 26. If you apply for DBE certification, you will be required to submit additional supporting documentation to ADOT. Any false or misleading information submitted by applicants will be grounds for denial, removal and/or prosecution. The DBE application will be displayed once the vendor registration is complete.

ATTACHMENT 8

PROCEDURES FOR REMOVAL OF DBE'S ELIGIBILITY

YCIPTA is not a certifying agency under the AUCP.

Ineligibility Complaints

Any person may file a written complaint alleging that a currently certified firm is not eligible and specifying the alleged reasons why the firm is ineligible. YCIPTA is not required to accept a general statement or allegation that a firm is ineligible, or an anonymous complaint. The complaint must include information supporting the assertion that the firm is ineligible and should not continue to be certified. Complainants identified must be protected as provided in Section 26.109(b).

YCIPTA will review their records concerning the firm and any materials provided by the complainant.

YCIPTA may request additional information or conduct any other investigation that YCIPTA deems necessary.

If YCIPTA determines that there is reasonable cause to believe that the firm is ineligible, YCIPTA will provide written notice to the firm that YCIPTA proposes to find the firm ineligible, setting forth the reasons. If YCIPTA determines that reasonable cause does not exist, YCIPTA will notify the complainant and the firm in writing of this determination and rationale. All statements of findings on the issue of reasonable cause must specifically reference the evidence in the record on which the statement is based.

Recipient Initiated

If based on notifications by the firm of a change in its circumstances or other information that comes to YCIPTA attention, YCIPTA determine that there is reasonable cause to believe that a currently certified firm is ineligible, YCIPTA will provide written notice to the firm that YCIPTA propose to find the firm ineligible, setting forth the reasons for the proposed determination. The statement of findings of reasonable cause must specifically reference the evidence in the record on which the statement is based.

DOT Directive

If DOT determines that a firm does not meet the requirements for eligibility, DOT will provide a notice setting forth the reasons for the record with relevant documentation, and the YCIPTA may initiate appropriate actions after consultation with DOT.

ATTACHMENT 9
REGULATION: 49 CFR PART 26

Please refer to: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr26_main_02.tpl

ATTACHMENT 10
BUSINESS DEVELOPMENT PROGRAMS

YCIPTA have not established business development programs.

ATTACHMENT 11
SMALL BUSINESS ENTERPRISE PROGRAM



Yuma County Intergovernmental Public Transportation Authority

2715 East 14th Street, Yuma, AZ 85365-1900, Telephone: 928-539-7076
Fax: 928-783-0309, email: info@ycipta.az.gov, Web: www.ycipta.az.gov

September 22, 2016

Discussion and Action Item 2

To: Yuma County Intergovernmental Public Transportation Authority
Board of Directors
From: Shelly Kreger, Transit Director
Subject: Discussion and or action regarding the YCIPTA/Quechan MOU
Exhibit A Amendment Six

Requested Action: Staff recommends that the Yuma County Intergovernmental Public Transportation Authority (YCIPTA) Board of Directors approve the YCIPTA/Quechan MOU Exhibit A Amendment Six.

Background and Summary: Each year the YCIPTA/Quechan MOU Exhibit A is amended to reflect the new contribution amounts based on the revised cost per revenue hour and the amount contributed by Imperial County Transportation Commission TDA funds.

Recommended Motion: That the Yuma County Intergovernmental Public Transportation Authority Board of Directors vote to approve the YCIPTA/Quechan MOU Exhibit A Amendment Six

Fiscal Impact: None

Legal Counsel Review: None.

Attachments: YCIPTA/Quechan MOU Exhibit A Amendment Six
For information on this staff report, please contact Shelly Kreger, Transit Director via email at skreger@ycipta.az.gov or call 928-539-7076, extension 101.

Approved for Submission

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director



Shelly Kreger
Transit Director

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

EXHIBIT A
AMENDMENT SIX FOR THE FORMULA FOR YCIPTA CONTRIBUTION

YCIPTA shall provide the following routes to QUECHAN for 07/01/2016 to 06/30/2017:

Route	Type of Service	Operating Days	Service Hours	Destinations
Blue Route 5 – Quechan Shuttle	Rural Fixed Route	Monday-Saturday	Approximately 7:15 am to 7:10 pm, every 60 minutes, Monday through Friday and from 9:15 am to 4:10 pm, every 60 minutes on Saturday. Weekdays Approx: 9.20 per day Saturday Approx: 5 per day	Fort Yuma Indian Reservation and Paradise Casino to Quechan Casino Resort, Winterhaven and Algodones/Andrade Border Crossing, and Downtown Yuma Transit Center.
Turquoise Route 10 – Interstate 8/El Centro/Yuma	Urban Fixed Route	Monday and Wednesday	Approximately 9:15 am to 11:30 am/2:00 pm to 5:30 pm on Monday and Wednesday. Monday/Wednesday Approx: 6.40 per day	Yuma Palms Regional Center to downtown El Centro and Paradise Casino, Winterhaven, Quechan Casino Resort, and Imperial Valley Mall on request.

QUECHAN shall pay YCIPTA an amount not to exceed **\$213,006.54** for the period of July 1, 2016, to June 30, 2017, as a local contribution towards the operation of the Yuma County Area Transit (YCAT)-system and the operational costs of the Blue Route 5 – Quechan Shuttle and Turquoise Route 10 – Interstate 8/El Centro/Yuma as defined in this Exhibit.

QUECHAN shall contribute to the marginal operating costs of Blue Route 5 and Turquoise Route 10 as defined below for the period of July 1, 2016, to June 30, 2017:

- **Blue Route 5 - From July 1, 2016 to June 30, 2017:** the marginal operating costs of Blue Route 5 are estimated to be \$175,140.25 (2,589.30 annual revenue vehicle hours times \$67.64 per revenue vehicle hour). QUECHAN shall contribute an amount that shall not exceed \$56,733.56, the amount related to services to be provided under that portion of the Federal Fiscal Years 2015/2016 Federal Transit Administration (FTA) Section 5311 (c) grant funding received by QUECHAN.
- **Turquoise Route 10 - From July 1, 2016 to June 30, 2017:** the marginal operating costs of Turquoise Route 10 are estimated to be \$37,269.64 (551 annual revenue vehicle hours times \$67.64 per revenue vehicle hour). QUECHAN shall contribute an amount that shall not exceed \$11,805.66, the amount related to services to be provided under that portion of the Federal Fiscal Years 2015/2016 Federal Transit Administration (FTA) Section 5311 (c) grant funding received by QUECHAN.
- ICTC will pay QUECHAN an amount not to exceed the annual subsidy amount of One Hundred Thirty-Eight Thousand, Seven Hundred Ten Dollars and Thirty-Two Cents (\$138,710.32) to fund Eastern

Imperial County Transit Services, as provided for in Section II.B.6 and reflected in Exhibit B of the YCIPTA/ICTC/QUECHAN MOU, as extended from time to time.

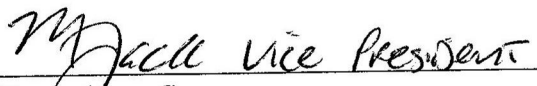
QUECHAN shall contribute \$5,757.00 as a membership contribution which is based on tribal population as established by the 2010 census divided against the Yuma County population.

For the purposes of this Exhibit and MOU, a revenue vehicle hour is defined as the times during which the vehicle is available to carry passengers, and which includes only those times between the time or scheduled time of the first passenger pick-up and the time or scheduled time of the last passenger drop-off during a period of the vehicle's continuous availability.

This exhibit may be amended each fiscal year as agreed upon by QUECHAN and YCIPTA to reflect the new operational costs for the operation of transit services to QUECHAN or the additional/removal of a fare subsidy for tribal members.

APPROVALS

QUECHAN INDIAN TRIBE



Mike Jackson, Sr.
President

YUMA COUNTY INTERGOVERNMENTAL
PUBLIC TRANSPORTATION AUTHORITY

Shelly Kreger
Transit Director



Yuma County Intergovernmental Public Transportation Authority

2715 East 14th Street, Yuma, AZ 85365-1900, Telephone: 928-539-7076
Fax: 928-783-0309, email: info@ycipta.az.gov, Web: www.ycipta.az.gov

September 22, 2016

Discussion and Action Item 3

To: Yuma County Intergovernmental Public Transportation Authority
Board of Directors
From: Shelly Kreger, Transit Director
Subject: Discussion and or action regarding the Intergovernmental Agreement
between Town of Quartzite and YCIPTA for the Purposes of
Coordinating Transit Services. Action required.

Requested Action: Staff recommends that the Yuma County Intergovernmental Public Transportation Authority (YCIPTA) Board of Directors approve the Intergovernmental Agreement between Town of Quartzite and YCIPTA for the Purposes of Coordinating Transit Services.

Background and Summary: The Town of Quartzite and YCIPTA desire to enter into an agreement for cooperation and coordination in route planning, scheduling, stops, transfers, fares and information dissemination regarding public transit service between YCIPTA's Jurisdiction and the Town of Quartzite's Jurisdiction.

YCIPTA and the Town of Quartzite will meet each other at the following YCAT locations:

- Yuma Palms Regional Center @ YCAT/Greyhound bus stop
- Downtown Yuma Transit Center on Gila Street @ 3rd Street @ YCAT bus stop

Recommended Motion: That the Yuma County Intergovernmental Public Transportation Authority Board of Directors vote to approve the Intergovernmental Agreement between Town of Quartzite and YCIPTA for the Purposes of Coordinating Transit Services.

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

Fiscal Impact: None

Legal Counsel Review: Yes

Attachments: Intergovernmental Agreement between Town of Quartzite and YCIPTA for the Purposes of Coordinating Transit Services.

For information on this staff report, please contact Shelly Kreger, Transit Director via email at skreger@ycipta.az.gov or call 928-539-7076, extension 101.

Approved for Submission



Shelly Kreger
Transit Director

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

**INTERGOVERNMENTAL AGREEMENT BETWEEN TOWN OF
QUARTZSITE AND YUMA COUNTY INTERGOVERNMENTAL
PUBLIC TRANSPORTATION AUTHORITY FOR THE PURPOSES OF
COORDINATING TRANSIT SERVICES**

THIS INTERGOVERNMENTAL AGREEMENT (“Agreement”) is made and entered into this _____ day of _____, 2016, by and between the Town of Quartzsite, a municipal corporation formed under the laws of the State of Arizona, (hereinafter referred to as "TOWN"), and the Yuma County Intergovernmental Public Transportation Authority, a political subdivision of the State of Arizona (hereinafter referred to as "YCIPTA"). The term “party” or “parties” as used herein refers to TOWN, YCIPTA, or both as appropriate.

RECITALS:

WHEREAS, YCIPTA is the administrator of the public transit service in Yuma County, which is known to the general public as Yuma County Area Transit (“YCAT”) and provides public transit services within and between the Cities of Yuma, San Luis, and Somerton, Arizona, the Fort Yuma-Quechan and Cocopah Tribal Reservations lands, unincorporated Yuma County and eastern Imperial County areas, and the Town of Wellton, Arizona (“YCIPTA’s Jurisdiction”);

WHEREAS, TOWN administers the public transit service in rural La Paz County, Arizona, and surrounding regions, which is known to the general public as Camel Express and provides public transit to the following areas: Blythe, California, Quartzsite, La Paz Valley, Rainbow Acres, and Long Term Camping areas on Highway 95, Parker, Yuma, and Lake Havasu City (“TOWN’s Jurisdiction”);

WHEREAS, TOWN and YCIPTA desire to enter into an agreement for cooperation and coordination in route planning, scheduling, stops, transfers, fares and information dissemination regarding public transit service between YCIPTA’s Jurisdiction and TOWN’s Jurisdiction;

WHEREAS, the parties are authorized by the provisions of Arizona Revised Statutes (“A.R.S.”) §§ 11-951 et seq., and 28-9122(A)(4) to enter into an intergovernmental agreement for the purposes of coordinating public transit services between Yuma County and rural La Paz County; and

WHEREAS, the parties agree that this Agreement shall be non-financial in nature and no money shall be exchanged between the parties in consideration of this Agreement.

NOW, THEREFORE, for good and valuable consideration, the sufficiency of which is hereby acknowledged, TOWN and YCIPTA agree as follows:

AGREEMENT

ARTICLE 1. PUBLIC INFORMATION

TOWN and YCIPTA agree to cooperate in providing the public of each respective party’s

Jurisdiction with specific transit information by advertising the operations of both parties and promoting the general use of public transit.

ARTICLE 2. STOPS

- A. TOWN and YCIPTA agree to cooperate in the location of the jointly used bus stops identified in Exhibit A, attached hereto and incorporated by this reference herein, including use of the other's poles and posts at the joint transfer points.
- B. Each party shall be solely responsible for claims for damages arising out of its installation of its bus stop signs or passenger amenities within its respective Jurisdiction.
- C. At any time during the Term of the Agreement, as herein after defined, each party may negotiate with the other party regarding boarding restrictions within its respective Jurisdiction where duplication of service or potential revenue loss may occur.
- D. Within TOWN Jurisdiction, TOWN will coordinate and install bus stop signs on behalf of YCIPTA upon written request to TOWN. Within YCIPTA Jurisdiction, YCIPTA will coordinate and install bus stop signs on behalf of TOWN upon written request to YCIPTA. This is in addition to the bus stop signs installed on the locations specified in Exhibit A. Each party shall be responsible for obtaining any required licenses or permits (if necessary) and paying any necessary fees in order to establish bus stops, install amenities or operate service in either party's Jurisdiction.

ARTICLE 3. FARES

Fares may vary in accordance with adopted policies of each party. Each party shall retain all fares collected in the operation of their service.

ARTICLE 4. TRANSFER CONNECTIONS

TOWN and YCIPTA agree to facilitate minimization of passenger waiting time, and both parties shall coordinate schedules whenever practical.

ARTICLE 5. TRANSFER

- A. TOWN charges its passengers Ten Dollars and No Cents (\$10.00) as a base fare to travel from TOWN's Jurisdiction to YCIPTA's Jurisdiction. YCIPTA shall allow Camel Express passengers to transfer to YCAT at no charge, provided that such Camel Express passenger transfers occur on the same day and present his or her Camel Express ticket to the YCAT driver.
- B. During the Term of this Agreement, as hereinafter defined, YCAT passengers shall ride the Camel Express to Quartzsite for a base fare of Eight Dollars and No Cents (\$8.00).
- C. Each party shall accept the other party's valid employee passes, dependent passes and retiree passes on all transit services in lieu of payment of fare.

ARTICLE 6. OPERATIONAL INFORMATION

- A. Each party shall notify the other party in writing of expected plans for route and schedule changes, not including temporary demand and emergency situations, no later than thirty (30) days before the changes are scheduled to be implemented.
- B. In the event of an emergency related to transit operations or a mechanical breakdown in either party's respective Jurisdiction, each party to the Agreement agrees to provide assistance to the other party so long as it occurs within a YCAT service area. Such assistance may include towing to the closest transit yard from where the vehicle is, limited maintenance assistance to return the vehicle back to service so that it can return back to its home yard, assisting with passengers during a mechanical breakdown or other emergency in the respective service area. All expenses shall be the sole responsibility of the party in need of the assistance, payable within thirty (30) days of receipt of invoice.

ARTICLE 7. INDEMNIFICATION

Each party to this Agreement, in its operations pursuant hereto, is acting as an independent contractor and agrees to indemnify, defend, and hold the other party, including its officers, directors, employees, agents, employees, subcontractors, volunteers, and suppliers, harmless from and against any and all claims, losses, damages and expenses, including attorneys' fees and costs, on account of bodily injury to or death of any person, or for property damage, arising out of the performance of services described in this Agreement, caused in whole or in part by any negligent act or omission of the other party, any subcontractor, anyone directly or indirectly employed by any of them or any whose acts of the other party may be liable, except where caused by the negligence or willful misconduct of the other party.

ARTICLE 8. SERVICE TO BE OPERATED

Each party may operate non-duplicating services in the other party's Jurisdiction upon the prior, written approval of the other party. Every attempt shall be made to coordinate alignments, schedules, stops, fare policies, and route planning for the safety and convenience of the general public.

ARTICLE 9. COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT

Each party shall be solely responsible for complying with the Americans with Disabilities Act of 1991 ("ADA") as amended, including the provision of parallel ADA demand response service along each party's fixed routes operated in the other party's Jurisdiction.

ARTICLE 10. NO MONETARY CLAIMS

Neither party shall have any claims against or liabilities to the other party on account of expenses incurred, or revenues received or lost, as a result of this Agreement, except as otherwise provided.

ARTICLE 11. TERM OF THE AGREEMENT

This Agreement shall be effective on the date of full execution by both parties and will remain in effect until terminated by either party with sixty (60) days advance written notice to the other party.

ARTICLE 12. NOTIFICATION AND MAILING ADDRESSES

Any notices or communications related to this Agreement shall be in writing, and shall be emailed, faxed, mailed, or delivered to the respective parties, including any notice of service and schedule changes, as follows:

YCIPTA:
Yuma County Intergovernmental Public
Transportation Authority
2715 East 14th Street
Yuma, AZ 85365
Attn: Transit Director
(928) 539-7076
skrieger@ycipta.az.gov

TOWN:
Town of Quartzsite
P.O. Box 2812
Quartzsite, AZ 85346
Attn: Transit Coordinator
(928) 927-4333, ext. 3335
jcollier@quartzsiteaz.org

ARTICLE 13. GENERAL PROVISIONS

- A. To the extent applicable under Arizona Revised Statutes (A.R.S.) § 41-4401, YCIPTA warrants compliance with all Federal immigration laws and regulations that relate to their employees and compliance with the e-Verify requirements under A.R.S. § 23-214(A). YCIPTA’s breach of the above-mentioned warranty shall be deemed a material breach of this Agreement and will result in immediate termination of this Agreement.
- B. No term or provision of this Agreement may be changed, waived, discharged or terminated unless the same is in writing executed by both TOWN and YCIPTA.
- C. This Agreement is non-assignable, in whole or in part, by any party hereto without the written consent of both parties.
- D. The parties acknowledge that this Agreement is subject to cancellation pursuant to A.R.S. § 38-511.
- E. Neither party shall be responsible for delays or failures in performance resulting from acts beyond their control. Such acts shall include, but are not limited to, acts of God, riots, acts of war, epidemics, governmental regulations imposed after the fact, fire, communication line failures or power failures.
- F. In the event suit is brought or an attorney is retained by any party to this Agreement to seek interpretation or construction of any term or provision of this Agreement, to enforce the terms of this Agreement, to collect any money due, or to obtain any money damages or equitable relief for

breach, or to seek recourse in a bankruptcy proceeding, the prevailing party shall be entitled to recover, in addition to any other available remedy, reimbursement for reasonable attorneys' fees, including attorneys' fees for representation in the bankruptcy court, court costs, costs of investigation, and other related expenses.

- G. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.
- H. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument.
- I. This Agreement contains the entire agreement between the parties on the subject matter set forth herein. All prior and contemporaneous agreements, representations, and understandings, written or oral, are superseded by and merged into this Agreement. No promises or assurances have been made which is not part of this Agreement. Any previous agreements, whether written or oral, entered into between the parties and null and void unless specifically incorporated herein. No supplement, modification, or amendment of this Agreement shall be binding unless in writing and executed by the parties hereto.
- J. The parties agree this Agreement shall be construed in accordance with the laws of the State of Arizona, and any controversy, dispute or litigation shall be brought or commenced only in the Superior Court of Yuma County, Arizona.
- K. The parties agree that the other party has no authority to enter into, or negotiate, contracts on behalf of the other. This Agreement does not create a partnership, joint venture or any other relationship between the parties, other than an independent contractor relationship.
- L. In the event that the parties are unable to resolve a dispute regarding this Agreement, the parties agree that the dispute shall be resolved by binding arbitration in Yuma, Arizona, in accordance with the Arizona Revised Uniform Arbitration Act.

- SIGNATURES ON THE NEXT PAGE -

IN WITNESS WHEREOF, the parties hereto have caused this Intergovernmental Agreement to be executed on the date first above written.

TOWN OF QUARTZSITE

YUMA COUNTY INTERGOVERNMENTAL
PUBLIC TRANSPORTATION AUTHORITY

Jim Ferguson
Interim Town Manager

Shelly Kreger
Transit Director

INTERGOVERNMENTAL AGREEMENT APPROVAL

The foregoing Intergovernmental Agreement has, prior to its execution, been submitted to the attorney for each party, who has determined that this Agreement is in proper form and is within the powers and authority under the laws of this State to such party.

Dated this ____ day of _____, 2016

By: _____
YCIPTA Attorney

Dated this ____ day of _____, 2016

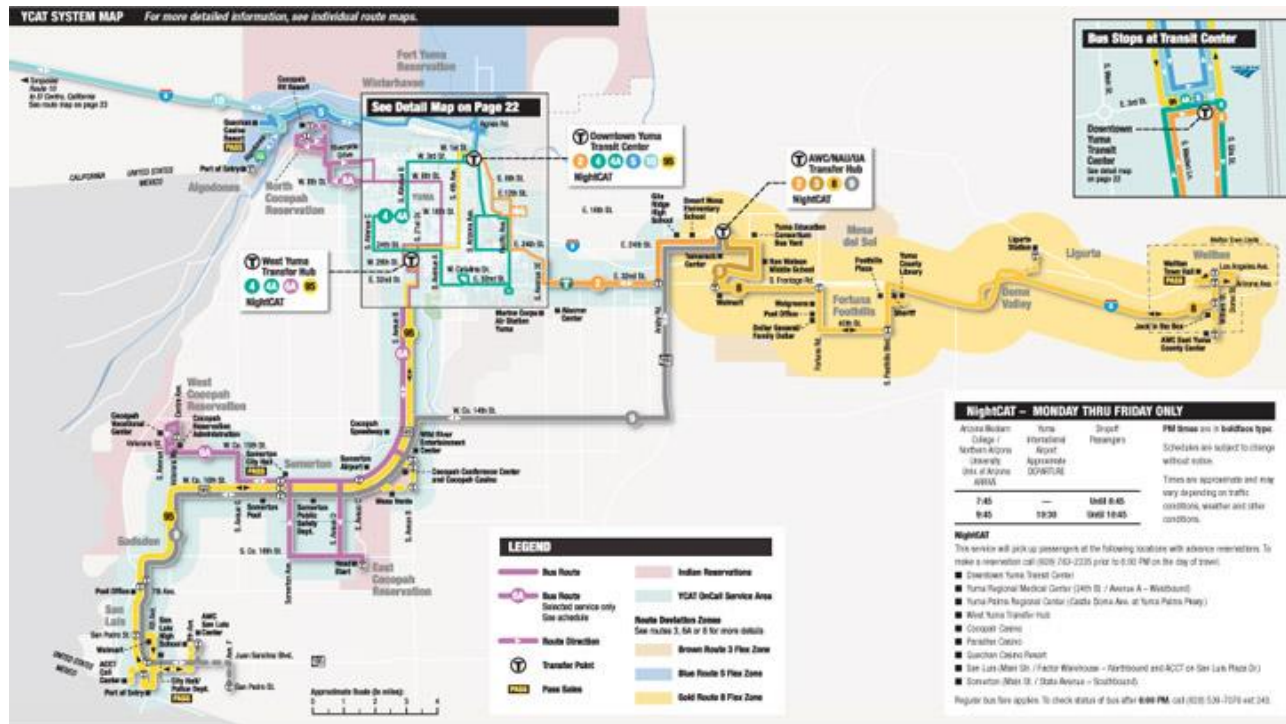
By: _____
TOWN Attorney

EXHIBIT A

TRANSIT SERVICE AREA MAPS AND COORDINATION POINTS

AS OF JULY 1, 2016

YCIPTA:



TOWN:



YCIPTA and TOWN will meet each other at the following YCAT locations:

- Yuma Palms Regional Center @ YCAT/Greyhound bus stop
- Downtown Yuma Transit Center on Gila Street @ 3rd Street @ YCAT bus stop



Yuma County Intergovernmental Public Transportation Authority

2715 East 14th Street, Yuma, AZ 85365-1900, Telephone: 928-539-7076
Fax: 928-783-0309, email: info@ycipta.az.gov, Web: www.ycipta.az.gov

September 22, 2016

Discussion and Action Item 4

To: Yuma County Intergovernmental Public Transportation Authority
Board of Directors
From: Shelly Kreger, Transit Director
Subject: Discussion regarding the Transit IDEA 79 Project – Implementation
of Smart Card Automatic Fare Collection (AFC) Technology in Small
Transit Agencies for Standard Development

Requested Action: No action required.

Background and Summary: While many of the nation's large transit agencies have adopted electronic automatic fare collection (AFC) and smart card systems, small and rural agencies remain tied to obsolete manual, cash-based fare collection. Implementation of smart card AFC technology in small and rural transit agencies offers the promise of increased passenger convenience, added passenger satisfaction, improved agency efficiency, and seamless transfers among other modes of transportation and other transit providers in their area. Smart card AFC technology provides improved and more frequent passenger data flow and bus stop data. However, small agencies cannot afford the cost of expensive proprietary smart card solutions typically offered by the major suppliers of fare collection systems. Deployment of the American Public Transportation Association (APTA) Contactless Fare Media System (CFMS) Standard eliminates the proprietary solution thereby driving down the cost of implementation. A standards based solution also offers inter-agency compatibility of fare payment systems.

The Acumen Building Enterprise, Inc. plan was to implement the APTA CFMS on a small rural agency system. Design and implementation of a total operational smart card system from the ground up is beyond the funding limits of the IDEA Program. Acumen chose the existing proprietary Yuma County Intergovernmental Public Transportation Authority (YCIPTA) system for standards implementation. In

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

addition, Acumen offered YCIPTA the added benefit for Yuma County Area Transit (YCAT) passengers to purchase and load fare products from an internet credit card payment processor.

Attached is the Transit IDEA 79 Project Final Report for your review.

Recommended Motion: None

Fiscal Impact: None

Legal Counsel Review: None.

Attachments: TRANSIT IDEA 79 Project Final Report

For information on this staff report, please contact Shelly Kreger, Transit Director via email at skreger@ycipta.az.gov or call 928-539-7076, extension 101.

Approved for Submission



Shelly Kreger
Transit Director

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
Brian Golding, Sr., Chairman – Quechan Indian Tribe, Bill Lee, Vice Chairman – City of Somerton,
Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

**Implementation of Smart Card Automatic Fare Collection (AFC) Technology in Small Transit
Agencies for Standards Development**

TRANSIT IDEA 79 Project Final Report

Prepared for the IDEA Program
Transportation Research Board
National Academy of Sciences

*Prepared by
Walter E. Allen
Robert D. Murray
Acumen Building Enterprise, Inc.
Oakland, CA*

September 2016

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ACKNOWLEDGEMENTS

Acumen invited the following industry experts to provide guidance to the Principal Investigator for the TRANSIT IDEA 79 Project goals, schedule, and features implemented and pilot results. The panel members' comments and recommendations, as appropriate, have been incorporated into the TRANSIT IDEA 79 Project, reports, and plans of the TRANSIT IDEA 79 Project.

- Ms. Katherine F. Turnbull
Executive Associate Director
Texas Transportation Institute, Texas A&M University
- Mr. Martin Schroeder
Chief Engineer
American Public Transportation
- Mr. Thomas Parker
Business Development
Infineon Technologies
- Ms. Shelly Kreger
Transit Director
Yuma County Intergovernmental Public Transportation Authority (YCIPTA)

The author gives special thanks to Ms. Shelly Kreger and the YCAT Team for their participation and support in making this Project successful during the concept development, installation and 90-day proof-of-concept Pilot Operation at the YCAT site. Without this participation and support, this Project could not have been completed at the site.

The author also acknowledges the contribution and direction by Ms. Jo Allen Gause, Senior Program Officer, National Academy of Science Research Board, for her patient guidance in the preparation of the reports and schedules for this TRANSIT IDEA 79 Project.

EXECUTIVE SUMMARY

While many of the nation's large transit agencies have adopted electronic automatic fare collection (AFC) and smart card systems, small and rural agencies remain tied to obsolete manual, cash-based fare collection. Implementation of smart card AFC technology in small and rural transit agencies offers the promise of increased passenger convenience, added passenger satisfaction, improved agency efficiency, and seamless transfers among other modes of transportation and other transit providers in their area. Smart card AFC technology provides improved and more frequent passenger data flow and bus stop data. However, small agencies cannot afford the cost of expensive proprietary smart card solutions typically offered by the major suppliers of fare collection systems. Deployment of the American Public Transportation Association (APTA) Contactless Fare Media System (CFMS) Standard eliminates the proprietary solution thereby driving down the cost of implementation. A standards based solution also offers inter-agency compatibility of fare payment systems.

The Acumen Building Enterprise, Inc. plan was to implement the APTA CFMS on a small rural agency system. Design and implementation of a total operational smart card system from the ground up is beyond the funding limits of the IDEA Program. Acumen chose the existing proprietary Yuma County Intergovernmental Public Transportation Authority (YCIPTA) system for standards implementation. In addition, Acumen offered YCIPTA the added benefit for Yuma County Area Transit (YCAT) passengers to purchase and load fare products from an internet credit card payment processor. Depending upon the particular transit agency, fare products include the following prepaid transit fares:

- Cash fares
- Rides
- Daily passes
- Monthly passes
- Multi-day passes
- Discounted fares and passes

The Acumen TRANSIT IDEA 79 Project plan culminated in a 90-day pilot operation successfully demonstrating the feasibility and operability of the APTA CFMS on a small agency.

Acumen modified the existing proprietary smart card data format. The new smart card format is the APTA CFMS format installed at YCIPTA. All existing YCIPTA fare policy features and functions are retained in the new smart card data format.

The smart card readers, AcuFare 200 Readers, were modified to read the old proprietary card format and the new APTA CFMS format interchangeably. Acumen ensured that both card formats could coexist in the revised system. Acumen also implemented an APTA CFMS-compliant back office computer system. The back office software was set up on Acumen computer servers in Acumen offices. Acumen designed and implemented a connection to PayPal® for credit card purchases. A connection was implemented with the YCIPTA existing passenger information website. Thus, a YCIPTA passenger is able to connect to YCIPTA website and purchase YCIPTA fare products for the fare payment smart card (YCAT card) by connecting to PayPal® through Acumen servers.

The revised and extended software was placed successfully into operation in April 2016 and continued in operation through September 2016.

With the successful operation of the APTA CFMS at YCIPTA, Acumen is evaluating other small and rural agencies who may be candidates for the smart card fare collection system. An operational credit card payment-processing feature will be included as an agency selected optional feature. Since the APTA CFMS data communications protocol was implemented by Acumen, any CFMS-compatible devices and systems can be included in other systems regardless of the manufacturer. Acumen is in progress to placing the Acumen manufactured hardware components into the General Services Administration (GSA) pricing schedule to enable small agencies the opportunity to purchase devices at the lowest market prices. The devices may then be incorporated into a CFMS-compliant smart card system.



Figure 1 YCAT Bus

Acumen believed that the small and rural agencies represented a large untapped market for contactless fare media smart cards. Further, with the utilization of standards, the implementation costs may be driven down within the range of affordability of these small agencies. The combination of the above factors, the unserved need and market combined with the flexibility of Acumen's small size and cost structure, leads Acumen to believe that it can serve the small and rural agencies. On this basis, Acumen applied for a grant under the TRANSIT IDEA 79 Project to implement a demonstration smart card system with a 90-day proof-of-concept Pilot Operation in conjunction with YCIPTA. This program is named Implementation of Smart card Automatic Fare Collection (AFC) Technology in Small Transit Agencies for Standards Development. Throughout this report, it is referenced as TRANSIT IDEA 79 Project.

As described in this TRANSIT IDEA 79 Project report, Acumen implemented the APTA CFMS card format and back office computer structure for the YCAT system. It also implemented the ability for passengers to load or add cash value or fare products on to the smart card by accessing an online website and purchasing the value or fare products with a credit card. This system was successfully piloted on the YCAT system for ninety days to prove its viability and operability.

Acumen chose YCIPTA to participate in the TRANSIT IDEA 79 Project because it had a contactless smart card system installed and in operation using a proprietary smart card data structure. Their geographical location is remote from any major metropolitan area and thus they are not under the umbrella of a potential regional smart card system. They are also geographically closer to the Acumen offices than most of the other small or rural agencies in the United States.

The implementation and placing into operation of the APTA CFMS card format and back office computer structure for the YCAT system was successful. In addition, the TRANSIT IDEA 79 Project demonstrated the viability of a cost effective implementation of the ability to load fare product purchased via the internet and have the fare product autoloading onto the smart card. The initial schedule was not met due to several unforeseen technical hurdles during the conversion of the proprietary contactless card data structure to the APTA CFMS data structure. Additional hurdles were experienced after the system was placed into operation. However, the system was viable and was implemented at a reasonable cost. The hurdles are described in the Lessons Learned section later in this report.

In summary, Acumen successfully implemented the APTA Contactless Fare Media Standard on the YCIPTA bus system as follows:

- Modified existing smart card readers
- Enabled passengers to select upgrading their smart card data structure
- Implemented an Agency Central Computer System
- Implemented a Regional Computer System
- Implemented an online internet connection to a credit card payment processor
- Successfully operated 90-day pilot of all implementations on the YCAT bus system

These features can be implemented at other small and rural agencies.

INDUSTRY ENVIRONMENT

While there are many major metropolitan areas having huge populations with transit agencies having hundreds of vehicles, there are over 1,300 (Mattson 2015) small and rural agencies throughout the United States. Most major metropolitan areas, if not all, have or will shortly invest millions of dollars in regional contactless fare media systems. The overwhelming majority of contactless fare media systems have been proprietary smart card and communications data structures implemented by large suppliers.

Having an online system with automatic data gathering is increasingly important for small/rural operators as Federal Transit Administration (FTA) and Moving Ahead for Progress in the 21st Century Act (MAP-21) reporting requirements become more stringent. Small transit agencies have avoided smart card AFC technology due to the high cost of proprietary solutions. Proprietary solutions typically are not responsive to Intelligent Transit System (ITS) protocols and the challenges of integrating mismatched equipment without defined standards. Furthermore, many of the high-end proprietary AFC applications fail to meet the modest needs of small agencies.

Twenty years ago, Hong Kong recognized that smart cards could provide increased value to the passenger travel experience. They became among the first couple of major transit systems to implement contactless smart card based AFC system. Since then, most major transit systems have implemented contactless smart card AFC systems. The Hong Kong Transit (MTR) carries 5.2 million passengers daily. (Mass Transit Railway (MTR) 2016) Unfortunately, small and rural agencies outside the umbrella of a major metropolitan area lack the monetary and technical resources to implement expensive and complex smart card systems provided by major suppliers.

Use of contactless smartcards for electronic fare payment is increasing over time. The trend began with contactless smart cards having the physical shape of payment cards and is now expanding to mobile devices such as mobile telephones, watches, fobs and other forms. As the usage has increased, the cost of deployment has been driven lower. International standardization of the smart card has been a key driver of the expanded use. ISO/IEC 14443 is an international standard that covers the physical and electronic characteristics for contactless smartcards. However, this standard does not define how the data is represented on the card. In 2002-3, APTA realized that standardization of AFC systems data would be a key to driving down the cost and increasing the interoperability of transit fare collection systems.

APTA formed the Universal Transit Fare System (UTFS) task force to develop standards. The task force examined a number of standardization efforts evolving worldwide including the Port Authority Trans-Hudson (PATH) Regional Interface Specification (RIS). (Trends in Electronic Fare Media Technology 2004) The task force also examined the following emerging standards efforts.

- ITSO - is unique in transport (England) smart card specifications in that it covers all components – card, point of service and back office systems. (ITSO Ltd n.d.)
- CALYPSO - is the international electronic ticketing standard for contactless smart cards, originally designed by a group of European transit operators. (Calypso (electronic ticketing system) n.d.)

More recently, other standards are emerging that impact the transit automatic fare collection systems. These standards are:

- Near-field communication (NFC) is a set of communication protocols that enable two electronic devices, one of which is usually a portable device such as a smartphone, to establish communication by bringing them within about 4 cm (2 in) of each other. (Near field communication n.d.)
- CiPurse/OSPT - security standard is a highly flexible set of specifications that can be adapted for both card-based and account-based AFC systems. (ospt Alliance 2011)

The documents resulting from the APTA UTFS task force were the Contactless Fare Media System (CFMS), Volumes 1 through 4, Trends in Fare Media and Major Business Issues as well as several other documents related the implementation of the smart card fare collection systems.

ITSO and CALYPSO are standards developed and used in Europe. CiPurse was developed to standardize on smart card data security and evolved after the CFMS. Near-field communications standards relate to mobile devices that have different ISO/IEC standards. This TRANSIT IDEA 79 Project was focused on the CFMS applicability in small and rural agencies and therefore other standards not required by CFMS were not considered.

THE IDEA

Acumen is a professional consulting firm established in 1994. Acumen is a small, flexible firm that is focused on transit systems engineering, construction management and operations and maintenance of systems for bus, and rail experience. They became among the first major transit systems to implement a contactless smart card-based AFC system. (Octopus card 2005) Since then, most major transit systems in the United States and worldwide have implemented contactless smart card AFC systems. Unfortunately, small and rural agencies in the United States outside the umbrella of a major metropolitan area lack the technical resources to implement expensive and complex smart card systems provided by major suppliers.

Acumen Building Enterprise, Inc. and Yuma County Intergovernmental Public Transportation Authority (YCIPTA), under a Contract from the National Academy of Sciences, Transportation Research Board, IDEA Program, agreed to implement and conduct a Pilot transit smart card fare payment system. This TRANSIT IDEA 79 Project implements the American Public Transportation Association (APTA) Contactless Fare Media System (CFMS) Standard. The APTA Standard specifies an interface between a smart card and a smart card reader, and the interface between the local equipment and the back-office fare collection data system. It was believed by Acumen and YCIPTA that no other small or rural agency in the United States had attempted implemented the APTA CFMS other than a large agency such as Miami-Dade Transit.

YCIPTA provides fixed route service throughout southwestern Yuma County including the cities of Yuma, San Luis, Somerton, Town of Wellton, Cocopah Indian Reservations and the unincorporated communities of Yuma County, including Gadsden, Ligurta and Fortuna. They also have routes to Imperial County, CA for El Centro, CA and Andrade, CA. YCIPTA operates 18 buses on 11 routes, Monday through Saturday. The YCIPTA buses operate under the name of YCAT and the existing contactless smart cards are called YCAT smart cards. (Kreger, Comprehensive Annual Financial Report Fiscal Year Ending June 30, 2015 2015)

Based on the premise explained in the Executive Summary, Acumen formed the idea from the following:

- Small and rural agencies can benefit from a contactless fare media smart card system.
- Implementation costs will be driven down by the use of standards for smart card system implementation.
- Small system integrators such as Acumen have lower cost structures and possess the organizational nimbleness to implement small systems in transit agencies.
- The APTA CFMS has been demonstrated to be a viable automatic fare collection schema in several United States transit agency implementations including the Miami-Dade Transit with the EASY Card. (Cubic Wins \$45+ Million Contract Award from Miami-Dade Transit, Building on 25-Year Relationship as Fare Collection System Supplier 2008) (Miami-Dade-Transit Automated Fare Collection System Contract 8481- 2008)
- The implementation of the APTA CFMS in small and rural agencies will provide the potential of greater interoperability among agencies.
- Directed loading of smart card fare product (value, rides) will be achieved through a low cost credit card payment processor and therefore will be affordable by small and rural agencies.

YCIPTA was an ideal candidate for the TRANSIT IDEA 79 Project because of the following factors:

- It already has a smart card fare collection system in operation.
- It is small and isolated from large regional transit systems.
- It is believed that a bank payment card website connection will encourage expanded use of its existing smart card system.
- It will receive additional smart card fare payment system features if the program is successful for a minimal investment.

From the above beliefs, Acumen submitted the TRANSIT IDEA 79 Project request that was made and subsequently approved by the TRB/NAS TRANSIT IDEA 79 Project.

APPROACH

GENERAL

The approach to demonstrate the viability of the APTA CFMS on a small agency involves first, recognition of the elements covered by the standard and second, the prerequisites required by the standard. Figure 2 shows the main elements of the CFMS. Details of this diagram are discussed below.

The APTA CFMS requires the use of the International Standards Organization (ISO)/International Electrotechnical Commission (IEC) Standard 14443 Identification Cards – Contactless Integrated Circuit Cards, as the underlying smart card characteristics. (Contactless Fare Media System Standard 2006) The operational YCIPTA smart card fare collection uses an ISO/IEC standard compliant card and thus is adaptable to the APTA standard data structure.

UNDERSTANDING THE APTA CONTACTLESS FARE MEDIA STANDARD

In 2003 (Contactless Fare Media System Standard 2006) APTA realized the lack of interoperability of fare media; in particular smart cards, was a deterrent to regional operability of fare media among transit agencies. Therefore, under the sponsorship of APTA, a central coordinating committee was formed with several major subgroups formed with specific tasks. The subgroups were staffed with volunteer transit agency professionals and transit industry supplier professionals. These subgroups developed the Contactless Fare Media Standards for use by United States and Canadian transit agencies. The primary goal was to promote interoperability of fare media among transit agencies. Two of the subgroups developed the standards implemented in YCIPTA as described in this report. One subgroup developed the data standards for the Proximity Integrated Circuit Card (PICC). The other group developed the communications, data and data structures for the Regional Central System (RCS) and the Agency Central System (ACS) (Contactless Fare Media System Standard 2007). Figure 2 shows the parts and the particular interfaces. The dark gray arrows in Figure 2 shows the data communications developed and specified in the standard for the RCS and FCS. The communications data structures shown by the light gray arrows to the subsystem controller, the CID and the PICC are not defined in any of the CFMS parts. They have been left undefined and at the discretion of the system designer and implementer.

Acumen developed and placed into operation a combined RCS and ACS in Acumen’s data center and extended the data communications (e.g. dark gray arrows in Figure 2 from the RCS to the CID). The APTA CFMS does not cover the light gray arrows or the Subsystem Controller shown in Figure 2. Acumen encountered issues when the communications were extended to the CID. These issues are discussed later in this report in the Lessons Learned section.

YCIPTA SMART CARD SYSTEM

The YCIPTA smart card fare collection system was an ideal system upon which to pilot the APTA CFMS. Several years ago, Acumen implemented the original smart card system with a proprietary smart card data format and placed the system into full operation for bus passengers. The business rules originally implemented by Acumen cover many of the options used in automatic fare collection systems. The YCIPTA system has a proprietary back office computer data system that compiles, analyzes and updates the smart cards and smart card readers on the system. The YCIPTA bus system is remote to any major metropolitan system and therefore any changes to the fare collection system do not affect other transit agencies. The smart card readers comply with International Standards as required by the APTA CFMS.

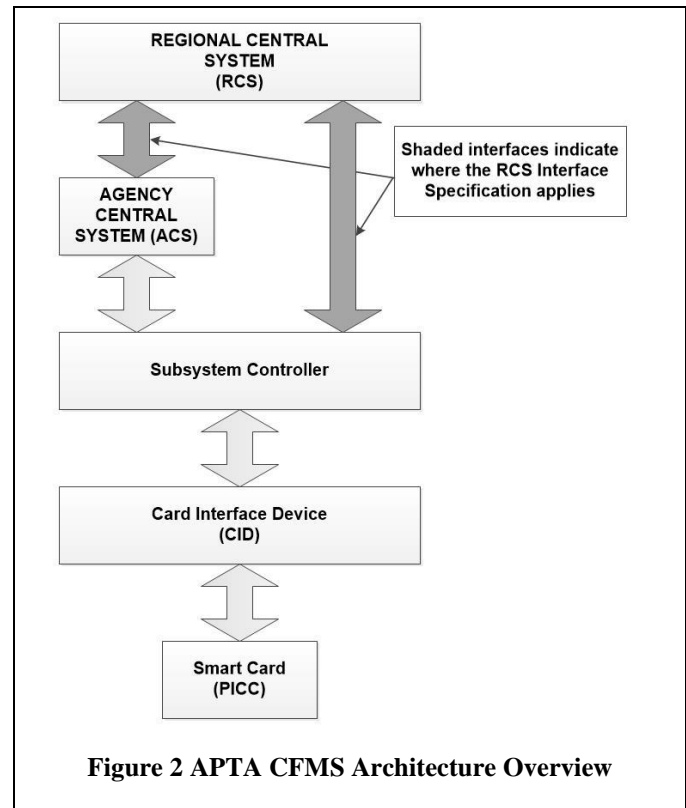


Figure 2 APTA CFMS Architecture Overview

For YCIPTA to participate in the TRANSIT IDEA 79 Project, they would expend internal resources to conduct the Pilot. To encourage YCIPTA participation in the TRANSIT IDEA 79 Project Acumen added smart card system enhancements beyond conformance to the CFMS. The extended functionality enables the purchase of YCIPTA fare products, value and passes, by using a credit card online over the internet. This, of course, gives passengers who use the smart cards a substantial benefit to load smart cards remotely and without cash.

Based upon the above, Acumen established an investigation and implementation. The main tasks in the plan were: (see Appendix B Project Plan Sample)

- Defined the division of work between Acumen and YCIPTA
- Defined the Business Rules implemented into the smart card and reader that use the newly adopted APTA Contactless Fare Media Standard (CFMS).
- Defined the software, using the APTA CFMS data communication interfaces among the smart card reader, back-office collection system, and web-based auto-load system
- Defined additional back-office business reports on system utilization resulting from use of the new functionality.
- Implemented the system on YCIPTA's fleet of fixed-route vehicles and in YCIPTA's administrative office
- Make Made CFMS-compliant smart cards available to patrons.
- Provided system training to transit operators and management
- Placed the system into use for a 90-day proof-of-concept Pilot Operation
- Document all standards used
- Document the business rules implemented.
- Develop a joint report with YCIPTA on the success of the pilot implementation.

ACUMEN CFMS ARCHITECTURE FOR YCIPTA

The Acumen system architecture to implement the APTA CFMS is shown in Figure 3 on the following page. The diagram shows four major processing systems linked by the Internet. These centers are:

- Passenger and Bus Center
- YCIPTA local AcuFare Management Center
- Acumen Host Processing Center
- PayPal® Payment Gateway Processing Center

The Passenger and Bus Center shows the YCIPTA passenger environment. The passengers use the YCAT smart card for fare payment on the bus. The passengers' YCAT smart card maintains the most recent use of the fare products. A synchronized copy of the fare product use and full history of the smart card use is maintained on the Acumen Host Processing Center computers. However, unless the passenger's smart card is damaged, lost or stolen, the "official account" is stored electronically on the smart card.

When a passenger desires to purchase fare products online, the passenger must register the YCAT smart card in the Agency's database. This is accomplished in one of two methods. The passenger may use a new feature to register the card using the internet connected through the YCAT website or visit the YCAT service center. Once the YCAT smart card is registered in the agency database with proper passenger identifying information, the passenger is able to request the purchase of YCAT fare products. Purchase of YCAT fare products is done on the same internet site as the registration of the YCAT card. The features of the YCAT card-based system versus an account-based system are discussed later in the section titled Smart Card Loading Technology. The passengers purchase YCAT smart card fare products via the internet that are subsequently loaded onto the YCAT smart card. The passenger must own or have access to an internet capable device and possess a credit card.

YCIPTA operations manage the AcuFare Readers mounted on the buses via the local AcuFare Management Center provided by Acumen. YCIPTA gathers daily YCAT card usage and fare payment data onto the USB thumb drive. This is accomplished by connecting the USB thumb drive to the AcuFare 200 Reader. The thumb drive downloads prior smart card transaction data from the reader to the thumb drive. Next, the thumb drive uploads card reader information to the reader. The uploaded information to the reader may include various data such as directives to load value or products to the smart cards or revised business rules.

When the USB thumb drive is returned to the YCIPTA local AcuFare Management Center and the thumb drive is inserted into the local computer, all of the transaction data is sent to the Acumen Host Processing Center. At the same time, the Acumen Host Processing Center downloads negative card lists updates, YCAT smart card action lists and YCAT smart card fare product purchases to the thumb drive. The thumb drive is then ready for the next daily update cycle.

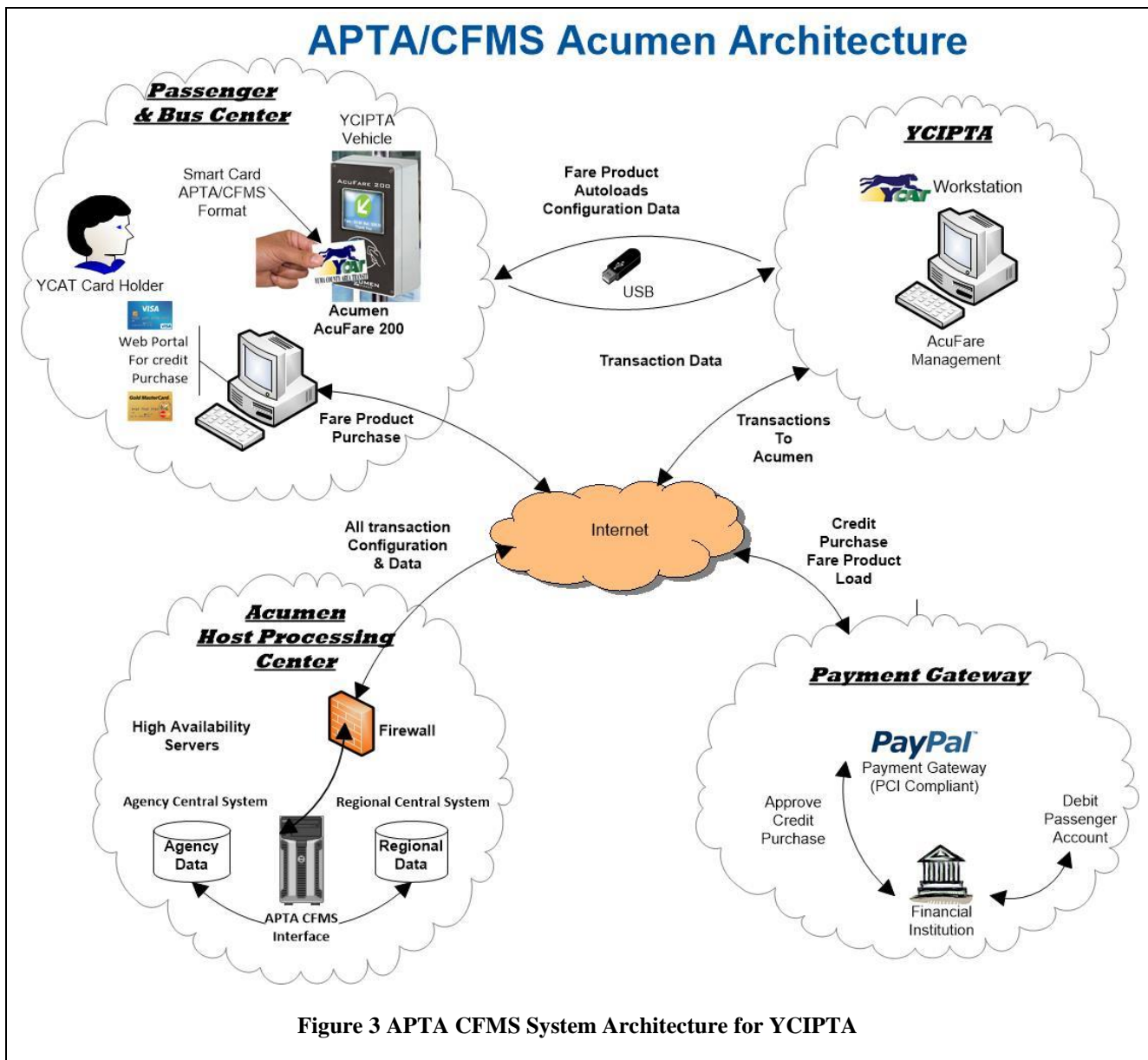


Figure 3 APTA CFMS System Architecture for YCIPTA

The Acumen Host Processing Center maintains all of the YCIPTA YCAT smart card transaction data in a history file. The Acumen Host Processing Center is the gateway for the YCAT smart card holder to access a secure payment-processing gateway. While the Acumen Host Processing Center is secure, it does not conform to the Payment Card Industry (PCI) standards because the Acumen Host Processing Center does not store or process credit or debit card information on the Acumen Processor. The Acumen Processor only provides the connection to the payment card gateway. The Acumen Processor is robust in its reliability and fully backed-up on a continuing basis.

Acumen selected the Payment Gateway Processing Center to handle the processing of credit or debit card transactions with the payment card industry, e.g. Visa, MasterCard, Discover, etc. The payment card processor chosen was PayPal®. When an YCAT card passenger makes a payment with a credit card, the passenger connects directly to PayPal® for all security

messaging by the Acumen Host Computer. Thus, as cited above, neither Acumen nor YCIPTA need conform to the very rigorous PCI requirements substantially reduces the implementation and operating costs of a payment card gateway. Due to project budget constraints, Acumen chose not to implement debit card processing at this time.

REFORMAT EXISTING YCAT SMART CARD

Implementation of the APTA CFMS required a restructuring to the YCAT smart card data to the CFM Standard data structure. Since the YCIPTA system is in operation and it is intended to remain in operation after the TRANSIT IDEA 79 Project, the smart cards with the CFMS must co-exist with the existing cards during and after the TRANSIT IDEA 79 Project. The transition from the existing proprietary smart card data format to the new CFMS smart card data format had to be transparent to the YCAT cardholders. On passenger use, the card data structure must be seamless to the passenger and to YCIPTA. The new data structure includes all data fields necessary for the YCAT existing operation and business rules. The new data structure also includes all data structures required by the APTA CFMS even though similar fields may not have been implemented in the previous proprietary data format implemented by Acumen.

ACUFARE 200 CARD READER

Implementation of the APTA CFMS requires revision of the smart card reader in two areas. The software that communicates with the smart card must be modified to add the new data fields for the APTA CFMS. The software must also be augmented to recognize both the Acumen proprietary smart card data structure and the CFMS smart card data structure and handle each correctly. Further as described late in Lessons Learned, the software was modified to enable the smart card data to be changed dynamically on the YCAT bus. The AcuFare 200 Card Reader is shown in Figure 4.

The communications protocol software to the back office data system was modified. The APTA CFMS specifies the data and its structures required to communicate between the reader and the back office data system. The quantity and the style of the data communicated using the APTA CFMS format is very different from the efficient proprietary format originally developed by Acumen.

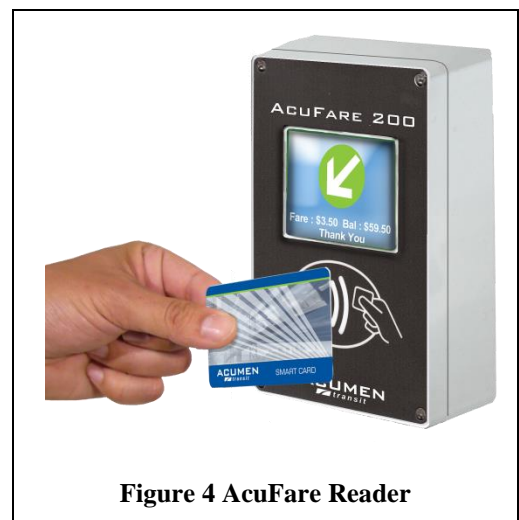


Figure 4 AcuFare Reader

YCAT CARD MANAGEMENT

Acumen provided a back-office application to allow YCIPTA to manage and electronically repair YCAT smart card. An existing management feature is the ability to restore fare products for lost or stolen cards that had been previously registered by the cardholder. Since the revised YCIPTA system must manage both the existing proprietary smart card format and the new CFMS card format, the back office application was modified by Acumen. The revised back office application adds a new option for YCIPTA use. When a YCAT smart card is detected by the back office application, the card type, whether the proprietary data format or the CFMS data format, the format is detected. If the proprietary data format is detected, the application offers YCIPTA the new option to modify the card data format to the CFMS data format. If the YCAT passenger instructs YCIPTA to modify (upgrade) the YCAT smart card, the Card Management Software inventories all fare products currently existing on the smart card, reformats the smart card and places the existing fare products into the new CFMS-compliant data structures. At this point, the passenger's YCAT smart card has the capability of receiving new fare products or adding fare products using the PayPal® payment processing via the internet.

ACUMEN HOST PROCESSING CENTER

The original host processing system did not have the following software functions implemented:

- Communications from the Acumen Host Processing Center to a Payment Gateway Processing Center
- The data structures required APTA CFMS
- The APTA CFMS communications structure with the AcuFare 200 smart card reader
- A website user interface for YCAT cardholders to purchase YCAT smart card fare products

- A website interface from the Acumen Host Processing Center to the existing YCIPTA website making the YCAT smart cardholder experience seamless
- A website interface to PayPal® for processing payment (credit) cards used by YCAT smart cardholders.

Acumen developed the software to host the APTA CFMS back-office data system for YCIPTA on an Acumen server at Acumen offices. The Acumen Host Processing Center ensures that smart card transactions to add value to the YCAT card occurs smoothly in a stable, secure environment. The Acumen server(s) used for hosting the smart card load system are fault tolerant computers with high availability and utilize Redundant Array of Independent Disks (RAID) configured disk drives for maintaining high availability. Acumen also regularly stores a backup copy of its data disks off-site for additional protection against a catastrophic failure and disaster recovery.

Communications Interface Modifications

Acumen revised the software originally provided to YCIPTA that communicates between the Acumen Host Processing Center and the on-bus AcuFare 200 smart card readers using the APTA CFMS communications protocol. The revised software includes all APTA CFMS required data structures and a revision of the existing data structures. These revisions implemented substantially increased the required computer data storage because the APTA CFMS is substantially less compact. The APTA CFMS data structures use Extensible Markup Language (XML) a common international standard communications language (XML 2016) for the underlying data communications protocol between the smart card reader and the back-end systems.

Add APTA CFMS Regional Central System and Agency Central System

Implementation of the APTA CFMS on the YCIPTA system required Acumen to implement an APTA CFMS Regional Central System and Agency Central System to be fully compliant to the standard. Since a “region” does not really exist for YCIPTA, Acumen combined the Agency Central System functions and the Regional Central System functions into the single Acumen Host Processing Center. Both the RCS and the ACS functionality exist, but both systems are in one Acumen Host Processing Center. The data communications between the two functions occur internally within the Acumen Host Processing Center processor.

Add Purchasing Product with Payment Card

To reward YCIPTA participation in the TRANSIT IDEA 79 Project, Acumen provided an addition to the original functionality of the YCAT system. The revised system enables the purchase of YCAT fare product online with credit cards. This new feature required the development of software and an interface between the Acumen Host Processing Center and a Payment Gateway Processor. The Payment Gateway Processor chosen by Acumen was PayPal®. PayPal® is currently being used by YCIPTA for other purposes so that actual payments for the YCAT card purchases are easily deposited directly into YCIPTA’s bank account. Using PayPal® also permitted Acumen to avoid the implementation of the Payment Card Industry (PCI) Data Security Standards (DSS).

The PCI DSS Quick Reference Guide (Payment Card Industry Data Security Standard 2016) states as follows:

The PCI Data Security Standard (DSS)...applies to all entities that store, process, and/or transmit cardholder data. It covers technical and operational system components included in or connected to cardholder data. If you are a merchant who accepts or processes payment cards, you must comply with the PCI DSS.

The system Acumen provided to YCIPTA in the TRANSIT IDEA 79 Project does not perform any of the actions stated in the quoted paragraph above; therefore, the Acumen system need not conform to PCI-DSS. All such requirements are handled by PayPal®

The Payment Card Industry Data Security Standard (PCI DSS) is a proprietary information security standard for organizations that handle branded credit cards from the major card schemes including Visa, MasterCard, American Express, Discover, and JCB. Private label cards – those that are not part of a major card scheme – are not included in the scope of the PCI DSS.

The PCI Standard is mandated by the card brands and administered by the Payment Card Industry Security Standards Council. The standard was created to increase controls around cardholder data to reduce credit card fraud. Validation of compliance is performed annually, either by an external Qualified Security Assessor (QSA) that creates a Report on

Compliance (ROC) for organizations handling large volumes of transactions, or by Self-Assessment Questionnaire (SAQ) for companies handling smaller volumes

Implementation of a system employing PCI/DSS is expensive to develop and costly to operate on a continuing basis. Only very large transit agencies have the technical staff to develop and operate a system employing these standards. Typically, small and rural agencies do not have the staff either to develop or to operate a system requiring the PCI/DSS standards.

Smart Card Loading Terminology

To understand the purchase of YCAT fare products and to load the products onto the smart cards, it helps by understanding the industry terminology. Acumen's implementation of the TRANSIT IDEA 79 Project with regard to prepaid purchases for the smart cards relies on the APTA loading terminology definitions. Per the APTA CFMS Part 1 (Contactless Fare Media System Standard 2007), the following is the definition of Autoload:

- Autoload: A method which automatically loads a PICC electronically with a transit fare product using a process which is usually transparent to the cardholder. Autoload may be implemented in three different ways: Directed, Threshold or Recurring.

A Directed Autoload is a smart card fare product load (value, rider, or passes) occurs whenever a cardholder purchases the fare product online and without presenting the smart card to the transit agency payment system at the time of purchase. For the system Acumen implemented at YCIPTA, the passenger first registers (or previously has registered) the smart card by providing unique identifying smart card and passenger information. Next, the passenger selects the products and values desired for loading. Upon validation of the passenger and smart card information, the passenger is connected to the PayPal® site where the purchase is consummated using a valid bank credit card. When approved, the Acumen provided back office system records the purchase and marks the smart card account record for remote loading by the bus mounted AcuFare 200 readers. This purchase and subsequent load process is a "Directed Autoload".

A Threshold Autoload occurs whenever a cardholder instructs the system to purchase additional fare product whenever a particular smart card threshold is reached. For example, a Threshold Autoload may occur when a designated low monetary value is reached or a low quantity of rides is reached. When the Threshold is reached, the system initiates a purchase and, if successful, instructs the system card reader to load the target smart card when next read by the card reader. This feature, Threshold Autoload, was not implemented by Acumen on the YCIPTA system.

A Recurring Autoload occurs whenever a cardholder instructs the system to purchase additional fare product whenever a particular period expires. For example, a Recurring Autoload may occur when 30 days or one month has expired since the last product load action. When the expired time is reached, the system initiates a purchase and, if successful, instructs the system card reader upon the next card reader update to load the target smart card when next read by the card reader. This feature, Recurring Autoload, was not implemented by Acumen on the YCIPTA system.

Implementation of Threshold Autoload and Recurring Autoload requires a means to retain identifying payment card information on the agency Central Computer System. A Central Computer System design that incorporates Threshold and Recurring Autoloads has Account Based card records. While card payment processors such as Authorize.net and PayPal® offer these services, substantial additional design and implementation for the YCIPTA system would have been required by Acumen. Acumen will offer these features as options on future implementations.

Acumen Smart Card Loading Implementation

Due to the substantial additional complexities of implementation and the variety of options presented to the YCAT cardholder, Acumen chose to implement only the Directed Autoload.

Welcome, alex@acumentransit.com | [Log Out](#)

YCATPass Fare Product Purchase

HOME ADD VALUE CART HISTORY REGISTER CARD REPORT CARD LOST, STOLEN, DAMAGED MANAGE ACCOUNT CONTACT US HELP

Registered Card: 9903 - Alex - Regular - (Regular Full Fare)

Item	Last Known Balance, Pending Purchases	YCAT Maximum Allowable	Amount to Cart	Purchase
T-Purse:			insert dollar value	
T-Purse	\$20.00	\$300.00	<input type="text"/>	Add to Cart
Basic Fare (19-64 years old):				
10-Ride YCATPass	20 passes	250 passes	\$17.50 each pass	Add to Cart
10-Day YCATPass	30 passes	30 passes	\$35.00 each pass	Add to Cart
31-Day YCATPass	1 passes	1 passes	\$60.00 each pass	Add to Cart

Figure 5 Website Screen for YCAT Product Selection

Add Website to Access Payment Processor

Acumen developed a multi-screen website to enable passengers to register their YCAT smart cards and to purchase fare products. Two of the screens developed are shown in Figure 5 and Figure 6. Figure 5 shows the screen for the passenger to select on or more of the four products. Figure 6 shows the screen for the passenger to set the quantity or value of one or two products. Additional screens were developed by Acumen but they are not illustrated here.

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YCATPass Fare Product Purchase

HOME	ADD VALUE	CART	HISTORY	REGISTER CARD	REPORT CARD LOST, STOLEN, DAMAGED	MANAGE ACCOUNT	CONTACT US	HELP
------	-----------	------	---------	---------------	-----------------------------------	----------------	------------	------

Your Cart

<u>Alias</u>	<u>Item</u>	<u>Price</u>	<u>Amt/Qty</u>	<u>Subtotal</u>	
Alex - Class Pass 9905	ClassPass	\$45.00	<input type="text" value="1"/>	\$45.00	<input type="button" value="Update"/> <input type="button" value="Delete"/>
Alex - Class Pass 9905	T-Purse		<input type="text" value="15.00"/>	\$15.00	<input type="button" value="Update"/> <input type="button" value="Delete"/>
Total				\$60.00	

Click here to pay

Figure 6 Website Screen for Value Selection

Add Link from YCAT Website to Acumen Website

Acumen linked the new screens to the existing YCAT website. This ensured that new the website screens were seamless and fully integrated with the YCAT website. Thus, a YCAT cardholder desiring to add fare products to the YCAT card makes a selection that seamlessly links to the Acumen website. When connected to the Acumen website, the cardholder selects the product or products to purchase. After selection, the cardholder is seamlessly linked to the PayPal® website for entry of the credit card information and completion of the purchase. A successfully completed purchase is communicated from the PayPal® website to the Acumen website for recording in the YCAT cardholder’s account for proper processing as previously described. Acumen designed the YCAT product purchase pages with a “look and feel” the same as the YCAT website pages.

PILOT OPERATION

The Pilot Operation was conducted for 90 calendar days. Immediately before the Pilot Operation, Acumen and YCIPTA transferred the YCIPTA operating data from the YCIPTA computer to the Acumen Host Processing Center. During the 90-day proof-of-concept Pilot Operation, Acumen operated the systems gathering the YCIPTA transaction data and handling the websites to the Payment Gateway. YCIPTA has complete access to smart card and passenger travel data when YCIPTA accesses the Acumen Host Processing Center. YCIPTA views and prints any of the data by preformatted reports provided by Acumen. During the 90-day Pilot Operation YCIPTA gathers the data from the bus AcuFare 200 Card Reader, loads (copies) the data to a USB Thumb Drive and uploads the data to the Acumen Host Processing Center for consolidation of the data into the YCIPTA master data file.

Completion of Pilot Operation

Upon completion of the 90-day proof-of-concept Pilot Operation and the TRANSIT IDEA 79 Project, Acumen will offer options to YCIPTA either to purchase the enhanced system features or to continue Acumen providing the Host Processing Center services for an annual fee. The enhanced features include the website services and the ability to purchase YCAT fare

products via the PayPal® Payment Gateway. Notwithstanding YCIPTA's decision on the enhanced functionality, the YCAT smart card data structure with the original proprietary data structure or the new APTA CFMS data structure are both recognized and interoperable on the AcuFare 200 smart card readers.

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LESSONS LEARNED

As with any undertaking there are lessons learned, both positive and negative, that can be applied to improve the implementation efficiency and the results for a similar undertaking. The implementation of the APTA CFMS and the added functionality of purchasing fare product online for automatic fare product loading resulted in lessons learned. For the sake of discussion and consideration in this report, the Lessons Learned are grouped into the following paragraphs. The groupings are:

- Implementation Lessons – which include cost considerations; methods; conflicting requirements and proposal oversights.
- Procedural Lessons – which include operating problems and misunderstandings among the TRANSIT IDEA 79 Project team.
- Technology Lessons – which includes equipment capabilities; standards' requirements; and technological practicality
- Demographic Lessons – which includes affluence; low income; passenger values and perceptions and special needs persons.

Another grouping that did not arise in the program is the means of conveyance such as buses, heavy rail, light rail, van, automobile, taxi, carpooling, etc.

IMPLEMENTATION LESSONS

Cost Containment, Debit Card Implementation

Acumen realized from the time of initial proposal that the idea of demonstrating the APTA CFMS in a small agency was a major undertaking that would require careful management of everyone's expectations to fit the implementation effort within the time and budget allotted by the TRANSIT IDEA 79 Project. Implementation of debit cards as a means of purchasing the fare products online over the internet was one item that had to be eliminated from the TRANSIT IDEA 79 Project due to the additional cost of the implementation. The elimination of this feature did not detract from the demonstration of the viability of the CFMS on YCAT. Implementation of purchase by a debit card is possible and can be offered as an option to other agencies. The purchase by debit card is already supported by the payment gateway, PayPal®.

Original Design Used Data Cables

When the original Acumen AcuFare system was implemented on the YCAT system, there was no low-cost easy-means to retrieve the data from the YCAT AcuFare reader on the buses at the end of the business day except via a USB cable connected to a thumb drive or a laptop computer by a bus garage person. During the very beginning of the 90-day pilot period, this limitation became an issue that was exacerbated by YCIPTA maintenance issues. In a typical systems integration project, the manufacturer, like Acumen, would have provided on-site representatives. In the TRANSIT IDEA 79 Project, with only a 90-day proof-of-concept Pilot Operation and a tight budget, Acumen relied on the YCIPTA staff that has their goal of keeping the buses running with the on-site maintenance. The data transfer cables and connectors had not been sufficiently maintained and valuable TRANSIT IDEA 79 Project time was lost. Acumen has developed a conceptual solution to the issue to eliminate the USB thumb drive and connector. Acumen conceptualized a wireless option that will be offered as an option on future systems.

Banking Gateway – eBay Card Format Transition

During implementation of the website to Payment Gateway provided by PayPal®, it became necessary for Acumen to access the PayPal® documents describing the means and methods for the interface. Possibly due to Acumen's unfamiliarity with this particular website, Acumen found the documents confusing, inaccurate and incomplete. With some assistance from PayPal® Acumen was able to decipher the requirements and implement the interface. This lack of familiarity and similar issues are to be expected in the systems integration business space.

Coexistence of Different Data Structures

Upgrading from a proprietary card format to the CFMS requires careful planning on the transition from the proprietary smart card data format to the CFMS smart card data format without disrupting the passenger use of the card. A possible resolution to this issue would be to replace the smart card originally provided to YCAT customers with new smart cards having the CFMS format. This would have resulted in additional cost of implementation.

PROCEDURAL LESSONS

Pilot Duration Limitations

Initially, YCIPTA and Acumen thought the 90-day proof-of-concept Pilot Operation duration would be sufficient for the full evaluation of the APTA CFMS implementation. Once the Pilot Period began, it became evident that it would be difficult to accomplish the evaluation within the period. Among the difficulties encountered were maintenance of smart card system equipment, passenger training and awareness, and the remoteness of YCIPTA headquarters site. Nonetheless, all participants strived to achieve the goals within the allotted time. Acumen recommends a longer Pilot period in complex projects.

Agency Understanding of Functionality

A small or rural transit agency understands the operation and maintenance of their transit system but may not understand the complexities of a high technology project. For this reason, it is the Supplier's responsibility, in this instance Acumen, to take the necessary extra steps to explain fully the workings of the technology being provided. This may require comprehensive training documents and on-site training. However, for a very limited budget, such as this TRANSIT IDEA 79 Project budget, the cost of travel becomes prohibitive and the supplier generally must rely upon training documents. Acumen was fortunate enough that manuals existed from the original implementation and these manuals only needed to be supplemented with the updated information.

Maintenance

In a small agency with a limited staff, it is easy for staff attention to be redirected from making the TRANSIT IDEA 79 Project successful and then possibly lose sight of keeping the system maintained. As mentioned in the previous section, during the early part of the 90-day proof-of-concept Pilot Operation, it seemed that the passengers were not using the existing smart card system at all. When the team investigated, we found that several AcuFare card reader connectors were broken and needed replacement. To exacerbate the situation, YCIPTA and Acumen did not have spare parts to repair the broken connectors. This maintenance issue resulted in a seven- to 10-day loss in the 90-day proof-of-concept Pilot Operation.

Passenger Training and Awareness

Passenger understanding of the system capabilities in relation to their needs is important in a highly technical undertaking. In large metropolitan areas, agencies have setup extensive and expensive passenger training sessions. For example, in New York when the Metro Card (i.e. a magnetic stripe fare card) was introduced to the public, the New York City Transit outfitted several buses with demonstration equipment and visited various sections of the city on a schedule. For the Washington Metropolitan Area Transit Authority (WMATA) SmarTrip Card (i.e. smart card fare card), WMATA outfitted a bus that was driven around the city.

For a 90-day pilot on this TRANSIT IDEA 79 Project, a formal passenger training and awareness campaign is impractical and cost prohibited. However, this lack of training and awareness presented itself as an issue on the TRANSIT IDEA 79 Project. It was difficult to create cardholder interest in the program, particularly since TRANSIT IDEA 79 Project only included a 90-day proof-of-concept Pilot Operation. Both YCIPTA and Acumen attempted to bolster interest. For example, Acumen and YCIPTA developed a flyer (seat drop) to place on the bus seats to obtain more cardholder interest. In hindsight, a more aggressive customer outreach program was required and needed to have been planned.

Limited Agency Staff

A small or rural transit agency has limited and/or no engineering professionals to assign to the implementation of a high technology project. YCIPTA is typical of such an agency. Small and rural agencies do not have operating or capital labor budgets to support such a staff on a continuing basis. Therefore, on the TRANSIT IDEA 79 Project, where the Pilot operation is only 90 days, the agency must "time-share" its TRANSIT IDEA 79 Project activities with its normal day-to-day operating activities.

TECHNOLOGY LESSONS

APTA Contactless Fare Media Standard

At the time of development, the APTA CFMS was at the forefront of the smart card implementation in the United States and Canada. There were also various competing standards in existence or development in Europe and Asia vying for adoption in North America. Thus, the development of the CFMS was a major undertaking concurrent with the implementation of a few major successful smart card fare media implementations in the North America. The CFMS teams were volunteers drawn from various North American agencies, major manufactures and several foreign manufacturers. The goal of course was to develop a set of standards that would be applicable to agencies, regions and manufactures. From the perspective of the original goals, the CFMS Project was a success. It provided the framework and the details for implementation of a smart card-based automatic fare collection system. This was demonstrated in the successful implementation of the CFMS in the Miami-Dade Transit and the surrounding Miami region. However, because the CFMS was developed prior to the actual use in an implementation and because non-regional small and rural agencies were not represented in the CFMS development, a possible revision to the CFMS should be considered.

Several of the topics discussed below about the CFMS describe the issues encountered when implementing a standards approach on a small agency in a non-regional environment. In the future, the small agencies may be interconnected to larger regions. However, small agencies are isolated and operate alone in regards to a smart card automatic fare collection system.

APTA CFMS Data Communication Structures

During the Acumen implementation of the Contactless Fare Media Standard, Version 1.0, several areas for improvement became apparent to Acumen developers. In order to help improve the standard, Acumen has identified some “Lessons Learned” and has some recommendations to remedy some of these areas:

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. XML is defined by several published specifications, all of which are free open standards. The Extensible Markup Language or XML is a very flexible way to exchange information between computer systems. Unfortunately, it is extremely inefficient in terms of memory and storage space and communication bandwidth. For that reason, Acumen believes that the requirement in the CFMS Part 3 to require the use of XML to communicate between smart card system equipment in a CFMS system and the RCS and ACS are overbearing. The use of XML results in data files and intra device communication messages many times larger than necessary as compared to a tighter binary format. Part 2 of the CFMS requires the smart card data is stored on the smart card uses a specific binary data storage format. While there were many examples of the inefficiencies of XML in the Acumen implementation of the CFMS, Autoload Identification is one example. The Autoload Identification number on the smart card is a number between 0 and 63. This number is represented as 7 binary bits whereas in XML format it requires at least 264 binary bits or 37 times more storage space and 37 times longer to transmit between devices. Therefore the use of XML may require faster devices with more memory and greater communication bandwidth than may be required if a smaller data communications format is specified.

During the implementation of the TRANSIT IDEA 79 Project, Acumen found the XML data communications format was too inefficient to store the data in the XML data format on a bus smart card reader. Acumen decided to store card data on the reader in a compressed proprietary data format. When the data was sent unloaded from the card reader, the data was converted to the XML data format immediately prior to transmittal to the next level. Data conversion at this stage is a better strategy and guards against filling the bus mounted smart card reader memory with unnecessary and useless information. During Acumen’s implementation of the changes in the smart card reader storage and data communications, it took more design hours and schedule time without any increase in form or function. Since the entire premise of the TRANSIT IDEA 79 Project was to implement and demonstrate the viability of CFMS on a small or rural agency, employment of XML communications was necessary.

Business Rules

A complex set of business rules is not easily implemented by the CFMS pass fare products definitions. The CFMS provides the means to define a custom data item that can store information to accommodate rules outside the simple pass fare products that are defined in the CFMS. Unfortunately, while this approach is very flexible, it defeats the purpose of a standard since it is

a retreat to a proprietary implementation and away from a standard approach. Furthermore, since no one outside of a particular implementation will know how the customized data is used, this represents a return to a proprietary implementation. Unfortunately, Acumen had to use such a tactic to implement the CFMS at YCIPTA. Acumen made extensive use of the Extension Object feature in CFMS to allow Acumen to implement the existing YCIPTA business rules. Unfortunately, the Extension Objects to a degree is a backward step to the uniformity of the standard, so this was not an ideal workaround.

CFMS Consistency Among Parts

The APTA CFMS was developed by four separate teams. While there were several team members who participated in multiple teams, for the most part, the teams were autonomous. Since the effort was voluntary and the pace of standard development work was aggressive, a person could not easily cover more than two teams effectively. During the Acumen implementation of the CFMS on the YCAT system, Acumen identified a few areas of inconsistency. Since the Acumen implementation team was small and compact, the standard inconsistencies did not always present a problem. However, if the teams were large and each member assigned separate tasks, standard inconsistencies could lead to significant problems. Appendix C APTA CFMS Specific Anomaly Reference provides a list of some of the inconsistencies Acumen encountered during implementation of the TRANSIT IDEA 79 Project. If the back- end system development and the front-end device firmware development are developed independently, the two systems may be incompatible. During implementation, Acumen made corrections in the inconsistencies where the intended meaning seemed obvious.

Large Data Structure

Fare payment systems that have proprietary data structures complete a data transfer between the smart card and the smart card reader occurs in 100 milliseconds or less. Transaction times in this range of 100 milliseconds seem instantaneous to a passenger. Due to the large amount of data that needs to be exchanged between the smart card and the bus mounted smart card reader using the APTA CFMS data structures, the transaction times are longer than ideal. Unless the card data structures and the read and write sequences are carefully designed, the transaction times can easily exceed 350 milliseconds. Long transaction times of 350 milliseconds or more result in passenger frustration and frequent smart card reader requests to “tag again.” For this reason, greater flexibility in the required quantity of data storage on the smart card may improve the transaction time.

From Acumen’s perspective during implementation of the TRANSIT IDEA 79 Project, the APTA CFMS seems biased towards implementation and use of Recurring Autoloads. Recurring Autoloads are card loads of stored value or fare products that are added to a card at regular set time intervals without the cardholder intervention or action. Threshold Autoloads are card loads of stored value or fare products that are added to a card when the level of a card product reaches a minimum threshold as set by the cardholder. Directed Autoloads are a one-time smart card load that made for are stored value or fare products that are added to a card in response to a purchase made by a cardholder. Directed Autoloads using the APTA CFMS data structure are difficult to implement securely and the data structures could be improved to improve the data and cardholder security. Threshold and Recurring Autoloads can be offered as options on future systems.

Software and Data Version Reporting

While the APTA CFMS provides some options to attach a date to some of the data, Acumen found some inconsistencies and shortcomings in the process. All fare smart card systems require a Negative List (a list of cards to be blocked) or Action Event List (a list of actions to perform to the card). Acumen has found that all the smart card readers in a system should report to the central host data system the current version of their Negative and Action Event List as contained in the smart card reader memory. Acumen has designed its AcuFare system, where the interface between the two systems is a manual file exchange process via a USB drive. In the APTA CFMS, the Negative and Action Event List provide for a date to be passed in the using the XML data structure variables defined in the standard. Unfortunately, there are no data structure variables defined for the smart card reader that is communicated to the host data system that provides the data necessary for the host system to identify Negative List and Action Event List file dates. It is also our opinion that the data structures should have included the time as well as the date to allow for instances where a Negative List is created multiple times in one day. Acumen added a proprietary message to convey this information, in addition to the CFMS messaging. It would have been more desirable to have this included in the CFMS standard messages.

The APTA CFMS should contain a unique data structure identifier for every transaction performed by a system smart card reader. The host processing system would then know exactly which transactions have been performed, based upon the

messages sent from the card readers to the host processing system. Transactions that have been performed can be removed from future Action Event lists sent to the smart card reader. The APTA CFMS provides a data element that can be used for the transaction event, however, its range is very limited and likely will “wrap around”. Even though the currently defined variable may work in most systems, a unique identifier would prevent the possible ambiguity inherent with a data field that can “wrap around” too quickly. Resolution of this issue will require careful study and planning in changes to the standard to not impact existing implementations.

APTA CFMS – Agency Central System

The CFMS explicitly states, “This Standard applies to contactless fare collection systems where two or more transit agencies share a common PICC and one or more common fare products for fare payment.” This implies that a single agency, including small and rural agencies is discouraged from using the APTA CFMS. The CFMS is focused on “interoperability”. Thus, by the explicit statement, the APTA CFMS is not intended for a single or small agency as currently structured. This focus of the APTA CFMS has resulted in some of the issues encountered by Acumen during the implementation of the TRANSIT IDEA 79 Project for YCIPTA. To maintain conformance to the APTA CFMS, Acumen did implement both an Agency Central System and a Regional Central System. (See earlier discussion.)

APTA CFMS – Regional Central System

The standard requires a “Regional” processing center that a small rural agency does not have or need. The Acumen implementation of the Acumen Host Processing Center placed the Agency Central System and Regional Central System functions into one processor. However, only one Central System was required. Therefore, Acumen’s conformance to the CFMS required software functionality that was unnecessary.

APTA Standard – Card Data Structure

The APTA CFMS Part II - Contactless Fare Media Data Format and Interface Standard is oriented toward large and regional agencies. As such, the APTA CFMS does not describe a subset of data elements that could be used in a small rural agency and still be compatible with the standard.

Card Reader to Subsystem Controller

The communications protocol to the fare collection equipment (e.g. card readers) is not specified in the APTA CFMS. Thus, communications with the equipment level either can be a proprietary format or could be via a standard XML format as specified for the Regional Central System or the Agency Central System to and from the Agency devices, i.e. card readers. However, the XML format has too much processing overhead for the functions performed. From Acumen’s perspective, it seems the protocol is more focused on large agencies with powerful data centers and large Subsystem Controllers.

DEMOGRAPHIC LESSONS

The Yuma County Intergovernmental Public Transportation Authority’s service area centers in the city of Yuma, AZ county seat of Yuma County, AZ. Yuma County’s population as of the 2010 U.S. Census was 195,751. (Kreger, Comprehensive Annual Financial Report Fiscal Year Ending June 30, 2015 2015) (Page 6) The primary industry is agriculture, military and tourism. On Interstate 8, more than 6.5 million vehicles per year (18,000 per day) pass through Yuma. At San Luis, another 2.6 million autos and 46,000 commercial vehicles annually cross the Mexican/United States border.

While Yuma County is mostly desert land surrounded by rugged mountains, the valley regions contain an abundance of arable land. These valley areas have some of the most fertile soils in the world. Yuma County is bordered by California on the West and Mexico on the South. Living close to the Mexican border offers a great opportunity to experience multicultural and international business opportunities. (Kreger, Comprehensive Annual Financial Report For Fiscal Year Ending June 30, 2015 2015)

Passenger Acceptance of Technology

As stated immediately above, Yuma is a highly agricultural county. Thus, many of the residents may not be cognizant of the latest technology. The County is also relatively remote from major metropolitan areas. Therefore, YCAT passengers who have

biases against using banks (see below) and who lack the monetary resources to prepay transit fares (see below) will also tend to reject high technology solutions to prepay a transit fare by the use of a smart card (a high technology solution). There is a variety of possible resolutions to this issue, each resolution having a cost impact. These resolutions may include:

- Install Point of Sale (POS) terminals in retail establishments such as Food City, Triple K and others in the Yuma area.
- Introduce Limited Use YCAT cards.
- Offer larger fare discounts when paying fares with YCAT smart cards. (YCAT already offer discounts of 10% to 25% when using YCAT cards.)
- Change the existing YCAT fare policy on the use of cash

Language Issues

Yuma is highly multicultural. The YCAT buses serve several Indian reservations and many Spanish-speaking Mexican riders. Conveying messages or instructions to non-English speaking riders becomes a challenge. In a 90-day proof-of-concept Pilot Operation, the challenge becomes almost impossible. Acumen relied heavily upon the multilingual capability of YCIPTA; however, getting the message of a new feature like loading fare products via the Internet in a short time period was very difficult.

Passenger Biases

Most agencies implementing smart card systems encounter issues on how to properly handle passengers and possibly cardholders who for multiple reasons are Unbanked. That is to say, the passengers prefer to use cash only and do not have bank accounts or credit cards. YCAT passengers appear to be even more “unbanked” and thus cannot use or will not use the feature to purchase fare products via the Internet.

YCIPTA reports that many of their passengers on YCAT fit into this category. Many of the YCAT passengers are Mexican residents who do not want to use banking and only ride the buses by paying with cash.

Passenger Monetary Capability

Many public transit riders use public transit because they are unable to afford any other transportation mode. This fact is not unique to YCAT and even exists in affluent cities such as San Francisco. Purchasing transit products, value or passes, particularly extended period passes, requires prepayment for the product in advance of use. Many public transit riders have insufficient monetary resources to prepay the transit fare. They lack the monetary resources to place transit value on a smart card for an extended period. As explained above in a summary of the Yuma area, Yuma County is primarily agriculture where worker income is low. Encouraging YCAT passengers to add value to their cards is a challenge and even encouraging the riders to obtain and use a smart card is a challenge.

CONCLUSIONS

There were many positive conclusions and lessons learned that could be stated from the implementation of this TRANSIT IDEA 79 Project. These conclusions are readily derived from the foregoing discussion of the many facets of the TRANSIT IDEA 79 Project.

The APTA CFMS can be implemented successfully at small, rural and medium agencies. Demonstrating the successful integration at one agency using the APTA CFMS shows that multiple agencies in a rural setting can be successfully integrated into a common regional system. Acumen followed the requirements of the APTA CFMS as faithfully as possible and demonstrated a working system. Furthermore, the implementation was achieved within a reasonable cost, albeit on a system which already had a proprietary smart card system to start with as a basis for TRANSIT IDEA 79 Project implementation.

Because of the many challenges regarding the YCIPTA demographics, the demonstration of passenger use of the ability to load fare products online over the Internet was not demonstrated in a great volume. We are confident, however, that passengers can benefit from the ability to load fare products online at small and medium agencies.

Small and medium agencies, of which YCAT is one, are fully capable of operating simple smart card systems using the APTA standards. YCIPTA has successfully operated the existing proprietary smart card system for more than four years and the implementation of the APTA CFMS format has been transparent to their operation.

While Acumen experienced some minor issues with implementing the PayPal[®] interface, Acumen found that using a readily available commercial bank card-processing system without the complexities of PCI/DSS is highly recommended.

As was identified in the Lessons Learned and provided in Appendix C, the APTA CFMS needs to be examined and possibly modified to assure the various parts of the CFMS are coordinated and consistent.

The APTA standard should be augmented to include an Agency Level System that can be implemented for use by small and medium sized transit agencies.

The APTA standard should develop, evaluate, or adopt a viable data communications protocol for the equipment level. This equipment level communications standard should be non-proprietary and possibly have a proven record of accomplishment for implementation and functionality. One such communications protocol for automatic fare collections systems that is publicly available, royalty and license free, is the Vendor Equipment Interface (VEI) protocol (Agent Systems 2002). Acumen and others have successfully used the protocol in prior fare collection systems.

With the intent of driving down implementation costs of a contactless fare collection system, Acumen has developed a pricing schedule for system components, similar to those used on the YCIPTA system. Within the next eight weeks, Acumen will apply to the U.S. Government, General Services Administration (GSA) to list the lowest price for the smart card fare collection systems components and services. This will allow small agencies to select those elements they require to implement a small system.

APPENDIX A EVALUATION REPORT SAMPLE

National Academy of Sciences IDEA Transit-79 Project Evaluation Criteria



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Figure 7 Pilot Operation Evaluation Criteria

APPENDIX B PROJECT PLAN SAMPLE

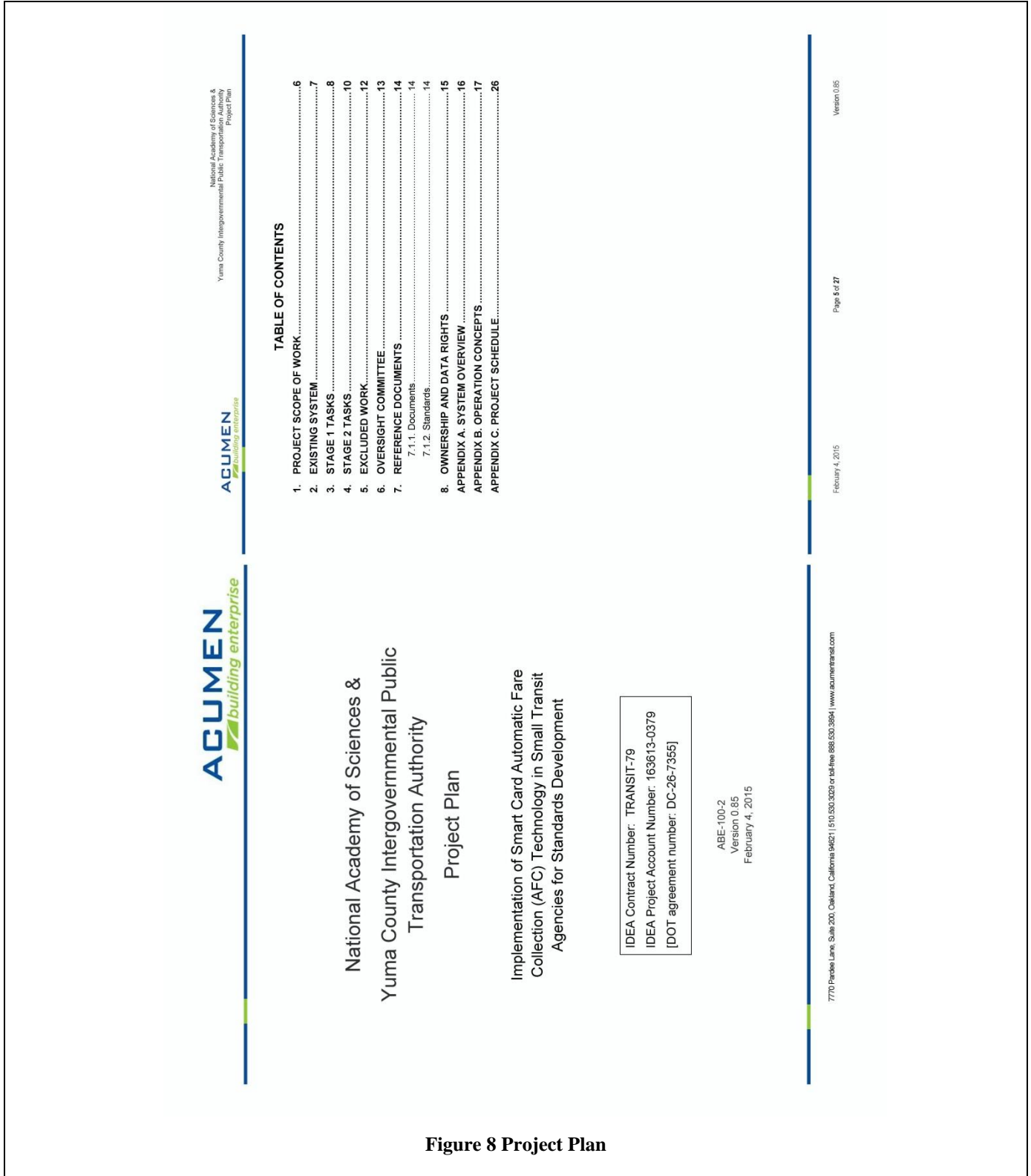


Figure 8 Project Plan

APPENDIX C APTA CFMS SPECIFIC ANOMALY REFERENCE

The following is a partial list of the anomalies identified during the implementation of the APTA CFMS on the YCIPTA system. This list is provided for future reference by those who may implement the CFMS on another system.

1. Examples in Part III of the XML messages did not include the root element, which is a requirement in the W3C standard definition.
2. Data element AuthenticationData was not defined anywhere in the four Parts of the standard. This element is used in the 'Negative List' message on Page 139 of Part III. Acumen entered the 'MACAlgorithmID' in this element.
3. In the definition of data element ActionEventDirectiveExpiry on Page 36 of Part III, the datatype should have been DATETIME rather than ULONG.
4. Data element TransactionMessage was not defined anywhere in the four Parts of the standard. This element is used in the 'Reject Transaction' message on Page 126 of Part III.
5. In Table 2 – Transit Application Profile Object (TAPO) RtsTransitExpirationDate is defined as having a size of 6 bits but occupying bit positions 34 through 49 inclusive. The size should be 16 bits and not 6 bits as stated.
6. In Table 3 – PICC Holder Profile Object (PHPO) RtsProfileCode is defined as having a size of 6 bits but occupying bit positions 56 – 71, inclusive. The actual size of this object should be 16 bits rather than the 6 bits it is stated to have.
7. Part IV – Security Planning and Implementation Guidelines and Best Practices of Contactless Fare Media System Standard states: *This document is not intended to be a specification or to establish standards for security. Rather, it provides the reader with understanding of the terminology associated with security programs for fare collection systems and highlights the basic steps and considerations that should be employed in order to define, implement, and manage a security program for a regional smart card-based fare collection system.* From this perspective, Acumen continued to employ the security systems that it had previously developed for the YCIPTA system and that has proven to be effective to date. The Transit Industry may wish to revisit this portion of the specification.
8. Part II - Contactless Fare Media Data Format and Interface Standard, Business Rules in Table 11 — Table 11—Pass and Transfer Product Objects, in data field RtsProductType identifies the various Product Types. The product types identified in this table were insufficient to handle the pass types currently employed in YCIPTA. In particular, YCIPTA has a one day pass, a 31 day pass (not monthly), and a single ride pass. None of these passes is listed in the product types. Thus, implementation of these passes on YCIPTA makes the implementation proprietary by definition. Acumen believes a standard needs to be inclusive of all variants to be a standard otherwise it is not a standard. In particular, having selected one of the unassigned additional products may make YCIPTA a proprietary implementation.
9. Part II - Contactless Fare Media Data Format and Interface Standard specifies certain required data objects in Section 4.3, The Core Objects. Typically, a small transit agency will not require all of the objects listed as the "Core Objects". Furthermore, many of the CFMS core objects are 16 bytes in length. The compound effect of large required core data objects with an inefficient XML communication structure made it exceedingly difficult to implement CFMS on a small agency system. Most of the data structures are unnecessary on a small system. Acumen recommends APTA examine reducing the quantity and size of the Core Objects for a small system implementation.
10. In a small system or a larger system but stand-alone, it should not be necessary to include all of the required data objects. The quantity of required objects are unnecessary for a small system combined with the large size of the data structures make the implementation of CFMS on small systems very difficult. The CFMS should examine the required data objects and eliminate those that are unnecessary for small systems.
11. In prior implementations of fare collection equipment on other systems by Acumen and frequently within other standards, there is a means to have remote version reporting. In the YCIPTA CFMS implementation, it became imperative that the card readers report their software version level. In this regard, Acumen implemented a version reporting system that automatically uploaded the software version level. This version level was then inserted into a preformatted report for operations personnel to use for system operation and maintenance. The APTA CFMS does not provide acceptable data fields to report system version levels. In Part II - Contactless Fare Media Data Format and Interface Standard under in Table 2 —Transit Application Profile Object (TAPO), page 13, the RtsTAPOVersionID Field allows two bits (four values) to report the version of the data structure. This is not adequate to report the version of software on a subsystem in the overall fare collection system.
12. In Figure 2 APTA CFMS Architecture Overview, the communication structures are shown. As was previously indicated, no communication structure is provided for the Subsystem Controller to Card Interface Device. Without the communications structure provided in the standard, one possible interpretation is to use the XML communications

protocol for this communications path. However, as discussed previously, the XML structure is too inefficient for this use. Acumen recommends that APTA evaluate the use of the Vendor Equipment Interface (VEI) protocol. Acumen and others have successfully used the protocol in prior fare collection systems. It is substantially more efficient than XML and the standard was intended for transit fare collection system. While the standard is licensed, there are no fees for using the standard.

13. In Part III – Regional Central System Interface Standard of the Contactless Fare Media System Standard, it states: *The specification does not define the system architecture of the fare collection system* and further *This Standard applies to regional contactless fare media systems for transit that use PICCs as the common contactless fare media*. Clearly, the APTA CFMS team did not intend for the standard to apply to an individual small transit agency. In fact, it does not appear to lay the basis for a fare collection system. Thus, small and rural agencies are at a substantial disadvantage in regards to implementation of a standards-based system as compared to well-funded large agencies. APTA should examine the possibility of defining a subset of functionality within the framework of the existing CFMS that can be applied to small and rural agencies.

INVESTIGATOR PROFILE

Walter E. Allen, President & Chief Executive Officer
Acumen Building Enterprise, Inc.
7770 Pardee Lane, Suite 200
Oakland, CA 94621-1490
Telephone: 510.530.3029
Facsimile: 510.530.3125
Toll Free: 888.530.3894

Mr. Allen is the president and chief executive officer of Acumen Building Enterprise, Inc. He is a transportation and infrastructure consultant with extensive experience in transportation systems, project controls, planning, and technology management. His primary focus has been in the areas of project oversight, cost control, information management, quality assurance/quality control (QA/QC), and schedule evaluation for projects and organizations valued at more than \$1000 million.

Mr. Allen has skills in systems planning, cost engineering, project planning, and smart card technology, and he has worked in the transit industry for the past 21 years. He has been principal-in-charge on many industry projects at Alameda-Contra Costa County Transit District, California Department of Transportation (Caltrans), Metropolitan Transportation Commission, San Francisco Bay Area Rapid Transit District (BART), San Francisco Municipal Railway, Union Pacific Rail Road, and the California Air Resources Board.

Mr. Allen is a former naval officer and he has worked as a management consultant with Coopers and Lybrand. He was involved in major change management and business process reengineering projects for several Fortune 100 companies.

Robert D. Murray, Senior Engineer/Project Manager
Acumen Building Enterprise, Inc.
Direct Line: 941-924-0164

Mr. Murray has consulted in the Transportation Industry for 12 years. Among his assignments, he assisted the management of WMATA's SmarTrip® project, managed the Acumen onsite team, developed test procedures and guided testing various portions of the system. He conducted a comprehensive study of the fare collection system options on Honolulu's new light rail project. He was a major contributor in the development of NTI's first course on "Implementing Contactless Fare Collection Systems" and was a primary instructor for the course. He was a major contributor to Miami-Dade's Easy Card specification and he was instrumental in guiding inclusion of the APTA CFMS into the specification. He has participated in consultation, design and implementation of fare collection systems in numerous rail and bus projects.

Prior to joining Acumen, Mr. Murray was a Division Engineering Manager in Computer Systems and Fare Collection Systems at BART for 12 years. During this period, he was a major contributor to the APTA CFMS. While at BART, he was responsible for engineering of fare collection systems, central train supervision systems, communication systems and Supervisory Control and Data Acquisition Systems. He developed specifications for passenger signs, LAN and WAN systems. He led the technical procurement of the BART regional smart card system. In prior Engineering Management positions, he was the project manager for the design and implementation of central control systems for BART, São Paulo Metro (Brazil), and Montréal Metro (Canada). In addition to transit systems skills and experience, he has managed computer control systems designs and implementation in automotive, steel, paper, semiconductors, petrochemical, aerospace and warehouses in 15 countries on six continents.

GLOSSARY

ACS — Area Computer System

AFC — Automatic Fare Collection

APTA — American Public Transportation Association

CFMS — Contactless Fare Media Standards published by APTA

CID — Card Interface Device (Contactless Fare Media System Standard 2007)

DSS — Data Security Standard

FTA — Federal Transit Administration

GSA — General Services Administration

IEC — International Electrotechnical Commission

ISO — International Organization for Standardization

ITS — Intelligent Transportation Systems

MAP-21 — Moving Ahead for Progress in the 21st Century Act

OSPT — Open Standard for Public Transportation

PATH — Port Authority Trans-Hudson

PCI — Payment Card Industry

PICC — Proximity Integrated Circuit Card (smart card) (Contactless Fare Media System Standard 2007)

POS — Point of Sale terminal

RAID — Redundant Array of Independent Disks

RCS — Regional Computer System

RIS — Regional Interface Specification

SSL — Secure Socket Layer

USB — Universal Serial Bus

UTFS — Universal Transit Fare System

VEI — Vendor Equipment Interface

WMATA — Washington Metropolitan Area Transit Authority

XML — Extensible Markup Language (XML 2016)

YCAT — Yuma County Area Transit

YCIPTA — Yuma County Intergovernmental Public Transportation Authority

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Yuma County Intergovernmental Public Transportation Authority

2715 East 14th Street, Yuma, AZ 85365-1900, Telephone: 928-539-7076
Fax: 928-783-0309, email: info@ycipta.az.gov, Web: www.yciptaz.gov

September 22, 2016

Discussion and Action Item 5

To: Yuma County Intergovernmental Public Transportation Authority
Board of Directors
From: Shelly Kreger, Transit Director
Subject: Discussion and update regarding vehicle audit and maintenance
issues.

Requested Action: None

Background and Summary: On August 12, 2016 staff reported to the board via email that an accident had occurred involving a wheel coming off of the bus and striking another vehicle. Since this incident, staff has hired an inspector to come on site and inspect every vehicle in the YCAT fleet including non-service vehicles.

This audit began on Monday September 19 and will continue until September 30, 2016. A final report will be issued at the end of the audit and provided to YCIPTA within 30 days. During this audit, I have been kept up to date of any problems with the vehicles and have been inside and under the vehicles while the inspector shows me as he comes across any issues.

Staff should have more to report at the board meeting.

Recommended Motion: None

Fiscal Impact: None

Legal Counsel Review: None.

Attachments: None

Yuma County Intergovernmental Public Transportation Authority Board Of Directors
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Susan Thorpe – Sec/Treasurer – Yuma County, Greg Wilkinson – City of Yuma,
Michael Sabath - Northern Arizona University, Dr. Daniel Corr - Arizona Western College,
Ralph Velez - City of San Luis, Larry Killman – Town of Wellton, Paul Soto – Cocopah Tribe

Shelly Kreger, Transit Director

For information on this staff report, please contact Shelly Kreger, Transit Director via email at skreger@ycipta.az.gov or call 928-539-7076, extension 101.

Approved for Submission



Shelly Kreger
Transit Director

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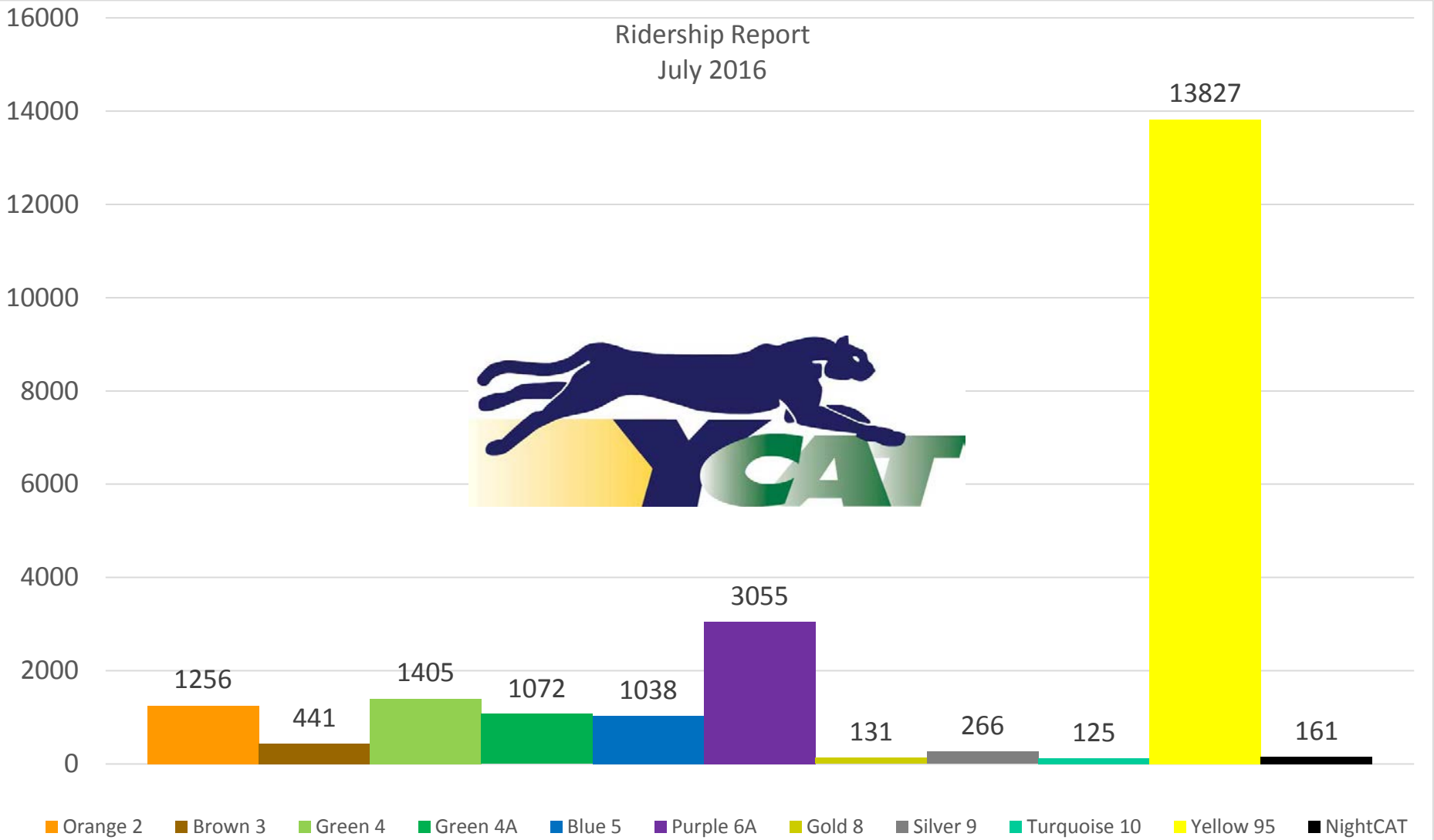
Transit Director Report – July & August 2016

- **Bus Shelters:** 7 Shelters have been installed in 5 locations to include 3 shelters at the transfer center at Walmart.
- **Fleet Inspection:** The entire fleet is currently in the process of having every vehicle in the fleet inspected and should have a final report by next board meeting.
- **APTA Annual Meeting:**
- **Shop Surveillance Equipment:** Staff is currently getting a quote from AVSA to install more cameras in the shop bays for better surveillance and better security.
- **Annual Single Audit:**
- **Community Transit Committee:** Staff is preparing to hit the media and newspapers again regarding forming the committee. We have had no response and feel that it is important to try again to get the community involved more. This is an ongoing effort.
- **Upcoming Projects:** Listed below are the projects that YCIPTA staff will be embarking for the next several months:
 - Ongoing YCAT Workshop sessions to train new passengers on how to ride YCAT.
 - Monitor National Express performance.
 - Finalize and install bus stops in the City of Yuma and Yuma County, including bus shelters through relocation of existing bus shelters.
 - Install advertising bus benches in Yuma and one on the Fort Yuma Indian Reservation.
 - Purchase capital equipment as defined in the capital budget (decals for rest of YCAT fleet, NextBus for buses that do not have GPS tracking (i.e. 111, 112, 113, 133, 134, 135, 139, 140, 144), purchase security cameras, install metal bus stop signs.
 - Surplus equipment - computers, buses and minivans.
Install smart card units on Bus #118, #121, #122, #123, #141, #142, #143

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Shelly Kreger, Transit Director

Ridership Report
July 2016



Ridership For
August 2016

