



iPhone Apps to Improve Efficiency with Collection Drivers

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Director Environmental Services, City of El Paso

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Facts about El Paso:

- Population about 672,000, 19th largest in the U.S.
- 250 square miles divided by Franklin Mountains
- Along with Juarez Mexico, the area is considered the world's largest metroplex.
- Voted safest city in the nation 4 years in a row. (CQ Press, 2014)
- Ranked among the top 3 best cities to raise a family. (Movoto Real Estate, 2013)
- Ranked top 5 in best mid size city job growth (Forbes, 2012)





ESD Mission statement

The mission of the Environmental Services Department is to provide code enforcement, environmental health and integrated solid waste management services to the Greater El Paso community so they can enjoy a healthy, clean, safe and beautiful environment.



Departmental Divisions

- Garbage and Recycling Collections
- Container Management
- Landfill
- Clean El Paso
- Code Enforcement/Air Quality/Vector Control
- Animal Services
- Training and Public Programs



Collections Division

- 175,000 Residential Accounts
- 375,000 – 96 gallon bins
- 75 ASL routes pull out daily
- 9 Semi-automated routes
- 171,000 tons of garbage collected in FY13
- 33,000 tons of recycling material collected FY13
- Collections budget about \$12 million
- On average, 1,925 container actions per month

SERVICE SOLUTIONS SUCCESS



ENVIRONMENTAL SERVICES DEPARTMENT COLLECTIONS DIVISION



2ND BEST IN NATION
SWANA SILVER EXCELLENCE AWARD

Back: Hiram Zacarias, Gerardo Valenzuela, Rodolfo Tellez, Alvaro Canales, Bobby Contreras, Marjo Ortega, Robert Araiza, Daniel Zuniga
Front: Jorge Avitia, Patrick Ross, John Garza, Richard Adams, Joe Amador, Jimmy Smith



**We do it right the
first time!**

99.6%

Bins emptied on first attempt



**City of El Paso
Environmental Services Department**



Background: For non-compliant collection service: not out for collection, too close to an object, overflowing, contamination, unacceptable material or waste, etc...

- Drivers use paper log, turn in at the end of day
- Photo taken, named, texted to supervisor
- Much record management required for logs and photos



ENVIRONMENT SERVICES DEPARTMENT
DAILY DRIVERS ROUTE LOG

UNIT #: 5006
ROUTE #: WR 1
REGION: WEST

DATE: 2-25-14
DRIVER: _____

RECYCLE ONLY (BLUE)

- 2) Material or Waste Overflowing From Container
- 4) Container Too Close To Some Other Object
- 6) Prohibited Waste or Materials In Container
- 8) Container Not Facing Properly
- 10) Container Not Accessible / Out Of Reach
- 12) Bin(s) Dropped into truck

TIME	SIDE	ADDRESS	CODE	TIME	SIDE	ADDRESS	CODE
0607	EVEN	NEW YORK		1110	EVEN	NEVADA	
—	ODD			1115	ODD		
0616	EVEN	ST. VRAIN			EVEN	LAUREL	
—	ODD			1135	ODD		
0621	EVEN	OCHOA		1120	EVEN	GOLDEN HILL TERRACE	
—	ODD				ODD		
	EVEN	RIM		1140	EVEN	WRIGHT	
1253	ODD				ODD		



ENVIRONMENT SERVICES DEPARTMENT
DAILY DRIVERS ROUTE LOG

UNIT #: 7103
ROUTE #: WTB
REGION: WEST

DATE: 3-12-14
DRIVER: _____

TRASH ONLY (GRAY)

- 1) Material or Waste Overflowing From Container
- 3) Container Too Close To Some Other Object
- 5) Prohibited Waste or Materials In Container
- 7) Container Not Facing Properly
- 9) Container not accessible / Out Of Reach
- 11) Container Not Out For Collection
- 12) Bin(s) Dropped into truck

TIME	ADDRESS	EXTRA LIFTS	CODE 11	OTHER CODE	TIME	ADDRESS	EXTRA LIFTS	CODE 11	OTHER CODE
540	PINE HURST		✓		853	PINO REAL		✓	
	6116, 6112, 6108		✓			6408, 6404, 6400		✓	
	6104, 6009, 6029		✓			6320, 6312, 6308		✓	
621	CERRITO GRANDE					6200, 6140, 6124		✓	
	1213, 1204, 1208		✓			6120, 6116, 6112		✓	
632	CERRITO PERDIDO		✓		859	BANDOLERO		✓	
	1200		✓			6260, 6256, 6244		✓	
638	CERRITO ALTO					6240, 6144, 6140		✓	
	1209		✓			6136, 6245, 6249		✓	



ENVIRONMENT SERVICES DEPARTMENT
DAILY DRIVERS ROUTE LOG

UNIT #: 7873
ROUTE #: U708
REGION: UES

DATE: 7/5/14
DRIVER: _____

TRASH ONLY (GRAY)

- 1) Material or Waste Overflowing From Container
- 3) Container Too Close To Some Other Object
- 5) Prohibited Waste or Materials In Container
- 7) Container Not Facing Properly
- 9) Container not accessible / Out Of Reach
- 11) Container Not Out For Collection
- 12) Bin(s) Dropped into truck

TIME	ADDRESS	EXTRA LIFTS	CODE 11	OTHER CODE	TIME	ADDRESS	EXTRA LIFTS	CODE 11	OTHER CODE
0877	STANTON 49, 205, 215, 2109			✓	08	CURT			✓
0878	LEWIS 219, 215, 2091			✓	08	LEWIS			
0879	CAMPBELL 2301, 2000			✓	08	TAMMLET			✓
0880	ROBINSON 715			✓	08	NEVADA			
0881	FLORENCE				08	LAUREL 246, 1700			✓
0882	HAGUE				08	BOBBSILL 1620, 1624			✓
0883	FINN 577, 1919			✓	08	MCWAIN			
0884	FRANKLIN 30, 47, 1607, 700			✓	08	NEVADA			
0885	FRANKLIN				08	WRIGHT			
0886	VIRGINIA				08	GEORGIA			✓



Driver Log

ENVIRONMENTAL SERVICES DEPARTMENT
DAILY DRIVER'S ROUTE LOG

UNIT#: 13130
ROUTE#: ET-01
RESID#: ET-01

DATE: 1-28-14
DRIVER: Robert Cornelius

TRASH ONLY (8887)

CODE-11- (925)
EXTRA LIFT- (1)

- 1) Material or Waste Overflowing From Container
- 2) Container Top Closed To Receive Other Object
- 3) Prohibited Waste or Materials In Container
- 4) Container Not Tied or Sealed Properly
- 5) Container Not Accessible or Out of Reach
- 6) Container Not Tied To Collector
- 7) Spill/Leakage on Truck

1052


TIME	ADDRESS	EXTRA LIFT	CODE	OTHER	TIME	ADDRESS	EXTRA LIFT	CODE	OTHER
	<u>Donce</u>					<u>Flamer</u>			
5:15	5480, 5441, 5453,	/			5:20	5621, 5617, 5616			/
5:20	5502, 5600, 5616	/			5:30	5509, 5440			/
	5620, 5614, 5641	/			5:40	5432, 5432, 5428, 5428			/
5:30	5657, 5610, 5601	/			5:45	5503, 5514, 5624			/
	5577, 5523, 5519	/			5:50	5503, 5514, 5624			/
5:40	5577, 5523, 5519	/			6:00	5503, 5514, 5624			/
	5577, 5523, 5519	/			6:05	5503, 5514, 5624			/
					6:10	5503, 5514, 5624			/
					6:15	5503, 5514, 5624			/
					6:20	5503, 5514, 5624			/
					6:25	5503, 5514, 5624			/
					6:30	5503, 5514, 5624			/
					6:35	5503, 5514, 5624			/
					6:40	5503, 5514, 5624			/
					6:45	5503, 5514, 5624			/
					6:50	5503, 5514, 5624			/
					6:55	5503, 5514, 5624			/
					7:00	5503, 5514, 5624			/
					7:05	5503, 5514, 5624			/
					7:10	5503, 5514, 5624			/
					7:15	5503, 5514, 5624			/
					7:20	5503, 5514, 5624			/
					7:25	5503, 5514, 5624			/
					7:30	5503, 5514, 5624			/
					7:35	5503, 5514, 5624			/
					7:40	5503, 5514, 5624			/
					7:45	5503, 5514, 5624			/
					7:50	5503, 5514, 5624			/
					7:55	5503, 5514, 5624			/
					8:00	5503, 5514, 5624			/
					8:05	5503, 5514, 5624			/
					8:10	5503, 5514, 5624			/
					8:15	5503, 5514, 5624			/
					8:20	5503, 5514, 5624			/
					8:25	5503, 5514, 5624			/
					8:30	5503, 5514, 5624			/
					8:35	5503, 5514, 5624			/
					8:40	5503, 5514, 5624			/
					8:45	5503, 5514, 5624			/
					8:50	5503, 5514, 5624			/
					8:55	5503, 5514, 5624			/
					9:00	5503, 5514, 5624			/




ENVIRONMENTAL SERVICES DEPARTMENT

We've noticed a problem with your GRAY / BLUE Bin:

Please call 915-621-6700 to reschedule collection or you may take your material directly to the landfill or a Citizen Collection Station. Disposal options listed on the back of this notice. Additional fees may apply.

1  Material or waste overflowing from bin(s) or placed outside of bin(s) **2**


Items placed in your bins must fit inside with the lid closed. Materials in gray bin must be bagged. Do not bag recyclables in blue bin.

3  Bin too close to a vehicle, too close together or too close to other obstacle **4**

Make sure your bins are placed at least 5 feet from any parked vehicle. Bins must be 3 feet apart and 3 feet away from any other obstacle. Your bin was too close to a:

VEHICLE OTHER BIN(S) TREE MAILBOX CABLEBOX

SIGN PHONE BOX/ POLE ROCKWALL/ FENCE OTHER OBJECT

5  Prohibited waste or material in bin: **6**

Item(s) listed below were inside your bin(s) and are not allowed. Disposal options listed on back of this notice.

7  Bin(s) not facing properly **8**

Bin(s) must be placed with the arrow on the lid pointing away from the curb or the handle of bin(s) against the curb line.

9  Bin(s) inaccessible / Out of reach / Locked gate **10**

Bin(s) must be placed at the curb with no obstructions that may prevent the arm of the collection truck from grabbing the bin(s), also yard gates must be open for Manual collection

Please follow the schedule for placing bins out for collection at curbside:

The night before collection day

Set out bin no earlier than 6:00 pm

On collection day

Set out bin no later than 5:00 am

After collection

Remove bin from curb by 7:00 pm

Please see reverse side for more information

SERVICE SOLUTIONS SUCCESS



S E R V I C E S O L U T I O N S S U C C E S S



S E R V I C E S O L U T I O N S S U C C E S S



S E R V I C E S O L U T I O N S S U C C E S S



SERVICE SOLUTIONS SUCCESS



SERVICE SOLUTIONS SUCCESS





Historical Approach:

- Driver records address, code violation, and time in a paper log.
- Driver takes photo and texts photo to supervisor.
- Driver calls supervisor to provide property address
- Supervisor downloads photos and manually organizes documentation
- Customer Call Center (311) receives customer complaint call.
- 311 notifies supervisor of call.
- Supervisor calls customer back when driver log becomes available.



What 311 does:

- 311 centralizes all incoming calls for all the city's departments to one location.
- Calls are handled by real people.
- Avoids duplication among city entities.
- Available 7 days a week 365 days a year.





In 2013 El Paso's 311:

- Took in 556,009 customer calls
 - ESD was the second highest call volume with 116,678 calls.
- Answered calls in 5.61 seconds (avg).
- Handled calls within 3 minutes.
- Stayed within allowable parameters for a customer to be on hold.
- Scored an overall average of 94.51% in quality assurance.



Why change?

- Driver begins cutting corners.
“pencil whipping”.
- Previous phone type not suitable for night pictures.
- Driver doesn’t want to take more than one picture.
- Drivers making copies of the same log sheet
- Supervisor not always available in the office. May forget address.
- Supervisor doesn’t have time to sort and match pictures with addresses.



Project Goals:

- Customer Service
- Response Time
- Response Quality
- Driver Efficiency
- Accountability





New Approach:

1. Use app to document the compliance issue and take photo
2. Let the app do all the work:
 - A. Upload information to Accela (work order system)
 - B. Upload photo with the work order
3. Provide 311 with real time information and eliminate the need to call a supervisor
4. Improve driver efficiency and alleviate time spent in office for supervisor



Accela Automation:

- Implemented citywide in 2008 to provide a streamlined workflow in the creation and execution of work orders, license request, permits, etc.
- Acts as a hub for all department work orders, service requests, and records.
- Accela allows supervisor access only for work orders pertaining to their region.
- Accela serves as a centralized filing system that identifies all the people involved in the work order process.



Planning Process:

1. Obtain services from CityGovApp and develop app to meet our demand.
2. Obtain smartphones for drivers.
3. Train drivers on smartphones.
4. Train drivers on app.
 - On occasion will have to manually enter address information
5. Train Customer Service Agents on retrieving information.



Testing:

Initial phase - November 2013

- Tested with 4 drivers
- Test period was about 2 weeks long
- Feedback for improvement

Change of button design from scroll to grid.

Capability to submit in the background.

Fix GPS accuracy.



Testing (Cont.):

Secondary phase - January 2014

- Tested with 14 drivers
- Test period was about 1.5 months long
- Feedback for improvement
 - Add new button for certain violations.
 - Color code buttons for Trash & Recycle.
- Around 700 to 750 test records created.

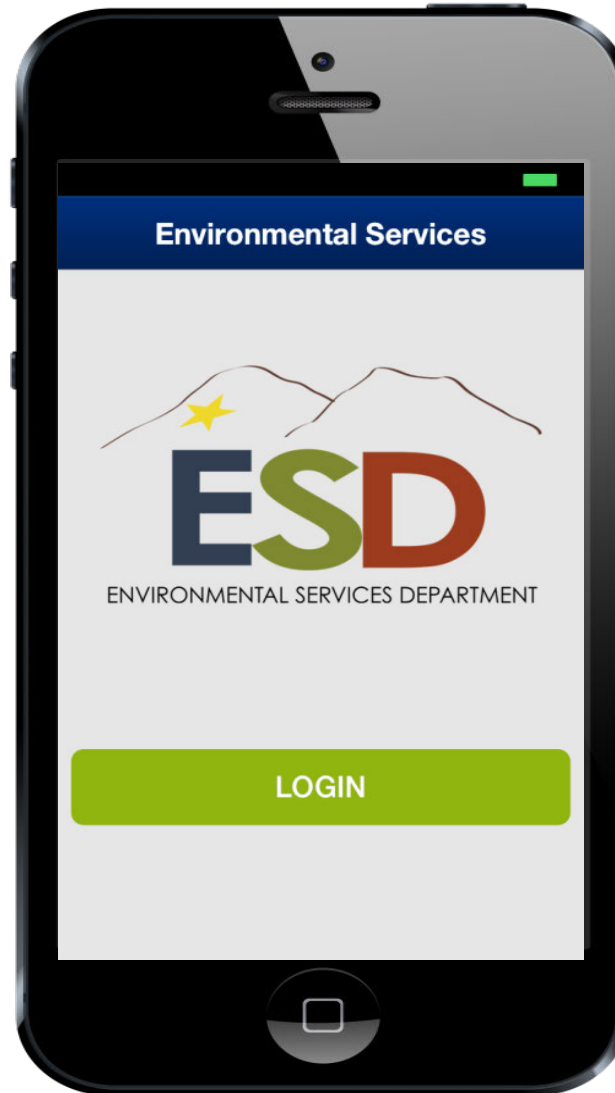


New Approach:

Four steps for app

Success:

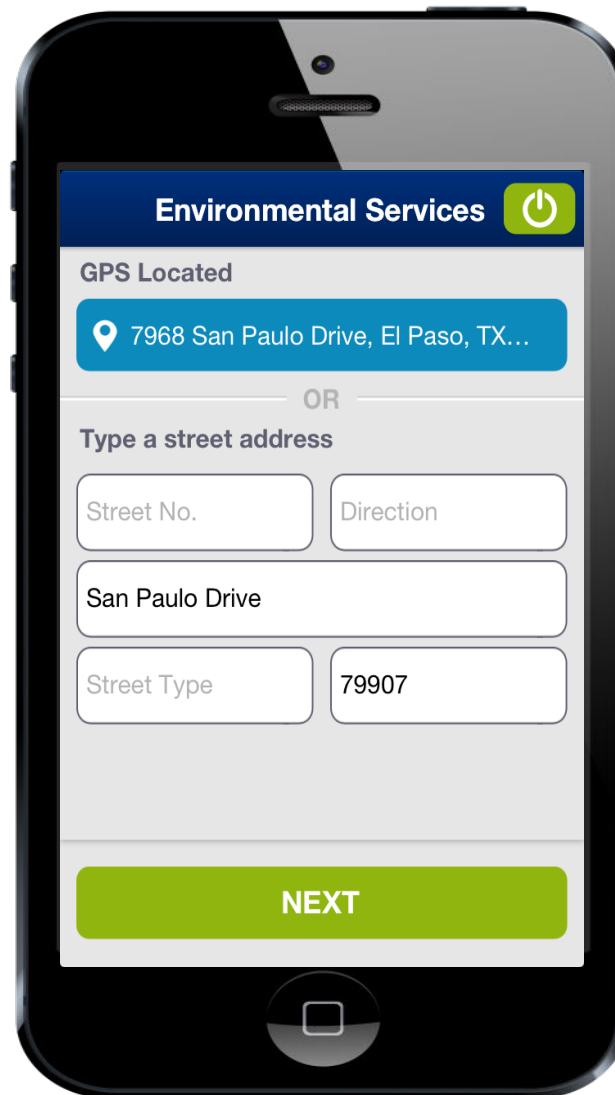
1. Keep it simple





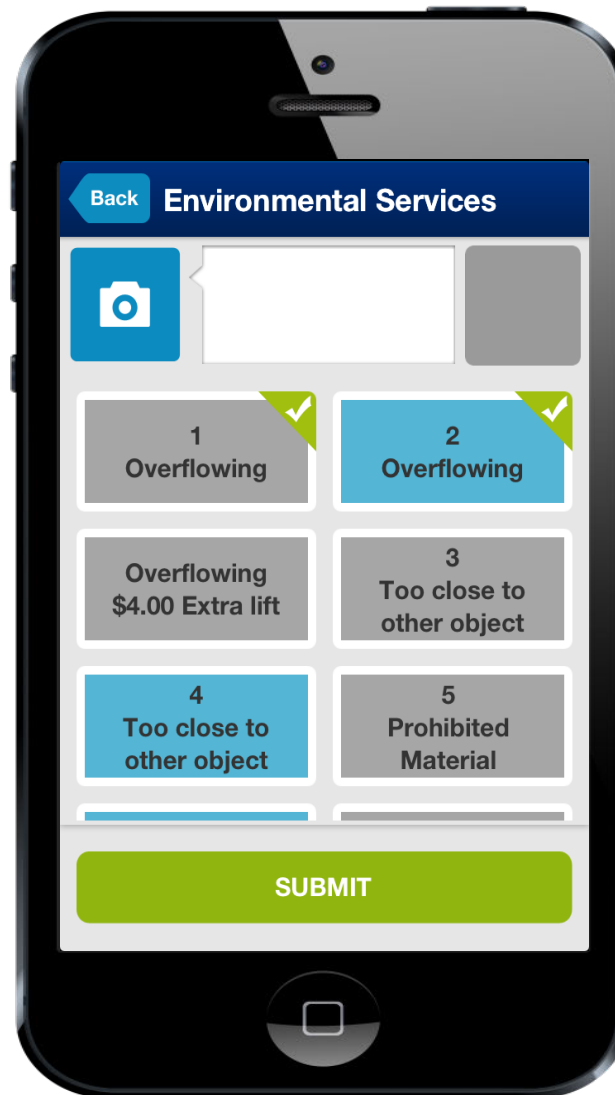
New Approach:

2. Engage the User





New Approach:
3.Solve a Problem





New Approach:

4. Embrace Flexibility





Work Orders in Accela

Record

Menu Search New Create By Form GIS Help My QuickQueries --Select-- Module AMS

1 2 3 4 5 6 7 8 9 10

Alternate ID	Record Type Alias	Application Name	Unit #	Status	Opened Date	Closed Date	Building #	Completed by Staff	Number	Direction	Street Name	St Ty
AEMG-032014-7014	AMS/ESD/Missed Garbage/Missed Garbage			Closed	03/31/2014				9162		BUR OAK	CI
AEMG-032014-7013	AMS/ESD/Missed Garbage/Missed Garbage			Cancelled	03/31/2014				11948		PUEBLO DEL RIO	W.
AEMG-032014-7012	AMS/ESD/Missed Garbage/Missed Garbage			Submitted	03/31/2014				11948		PUEBLO DEL RIO	W.
AEMG-032014-7011	AMS/ESD/Missed Garbage/Missed Garbage			Submitted	03/31/2014				4537		LOMA DEL REY	CI
AEMG-032014-7010	AMS/ESD/Missed Garbage/Missed Garbage			Cancelled	03/31/2014				11952		PUEBLO DEL RIO	W.

1 2 3 4 5 6 7 8 9 10

Record ID: AEMG-032014-7012

Menu Help

Go To Summary Record Activities (0) Activity Summary (2) Address (1) Addtl Info App Specific Info App Specific Info Tables (1) Application History (2) Assets (0) Assignments and Costs (1)

Description of Work: [03/31/2014 @ 09221 Caller reporting the trash has not been picked up in his neighborhood. Everyone's containers are still out.](#)

Application Status: [Submitted](#)

Application Detail: [Detail](#)

Application Type: [AMS/ESD/Missed Garbage/Missed Garbage](#)

Address: [11948 PUEBLO DEL RIO WAY, - EL PASO, TX 79936](#)

Owner Name: [CHASE BANK OF TEXAS](#)

Owner Address: [11948 PUEBLO DEL RIO WAY, EL PASO, TX 79936](#)

Application Name:

Application Comments: View ID Comment Date



Accessing Pictures

Record

Menu ▾ Refine Search New Create By Form GIS Help My QuickQueries --Select-- Module AMS ▾

⏪ 21 22 23 24 25 26 27 28 29 30 ⏩

<input type="checkbox"/> <u>Alternate ID</u>	<u>Record Type Alias</u>	<u>Application Name</u>	<u>Unit #</u>	<u>Status</u>	<u>Opened Date</u>	<u>Closed Date</u>	<u>Building #</u>	<u>Completed by Staff</u>	<u>Number</u>	<u>Direction</u>	<u>Street Name</u>
<input type="checkbox"/> AEMG-032014-6859	AMS/ESD/Missed Garbage/Missed Garbage			Submitted	03/28/2014				741		Vern Butler Drive
<input type="checkbox"/> AEMG-032014-6860	AMS/ESD/Missed Garbage/Missed Garbage				03/28/2014				1551		Da Vinci
<input type="checkbox"/> AEMG-032014-6861	AMS/ESD/Missed Garbage/Missed Garbage				03/28/2014				848		Centennial Drive
<input type="checkbox"/> AEMG-032014-6862	AMS/ESD/Missed Garbage/Missed Garbage				03/28/2014				12100		Fred Carter Drive
<input type="checkbox"/> AEMG-032014-6863	AMS/ESD/Missed Garbage/Missed Garbage				03/28/2014				12102		Fred Carter Drive

⏪ 21 22 23 24 25 26 27 28 29 30 ⏩

Record ID: AEMG-032014-6859

Menu ▾ New Manage Documents ▾ Help

Go To ▾ 0 Documents (1) GIS (0) Owner (0) Parcel (0) Part (0) PM Schedule Professionals (0) Related Records Section Township Range Status Structures Structures & Establish

<input type="checkbox"/> <u>File Name</u>	<u>Category</u>	<u>Description</u>	<u>Size</u>	<u>Type</u>	<u>Entity Type</u>	<u>Inspection</u>	<u>Modified Date</u>	<u>Record Type Alias</u>	<u>Alternate ID</u>
<input type="checkbox"/> image1.png			1.36 MB		Record		03/28/2014		



Document Information ✕

image1.png

Uploaded
Uploaded on 03/28/2014

Doc Info

Doc Review Tasks

Doc Review History

Download

Save **View** **Help**

File Name	Category	Description
image1.png		
Size	Type	Modified By
1.36 MB		Pete Carrillo
Source	Department	Document Status
ADS	ESD Collections	Uploaded ▾
ACA Permissions	Uploaded On	Uploaded By
Follow Document Type Security	03/28/2014	Pete Carrillo
Virtual Folders	Document Status Date	
<input type="text"/>	03/28/2014	

S E R V I C E S O L U T I O N S S U C C E S S





Supervisor Log & Workflow

SUPERVISOR LOG							
By	Type of Contact	Contact Result	Action	Date	Time Reason	Fees	Comment
	ESD				Too close to other obj...	628	
Job Value: \$0.00							
Parcel No:							
Contact Info:	Name		Organization Name		Contact Type		Relationship
Licensed Professionals Info:	Primary		License Number		License Type	Name	Business Name
File Date: 03/21/2014							
Structure:	Name		Type		Status		Status Date
Workflow Status:	Task		Assigned To		Status		Status Date Action By
Work Order Submittal							
Field Work Order							
Finance Review Marsela Hernandez							
Close							



Workflow

Record ID: AEMG-032014-6859

Submit

Assign

Reset

Calculate Hours

Cancel

Help

Task Details

Sub Tasks (0)



Workflow Tasks

- Work Order Submittal
- Field Work Order**
- Finance Review
- Close

There currently are no ad hoc tasks defined.

Task Details - Field Work Order

Department * Current Department

ESD Solid Waste

Staff * Current User

Jorge Avitia

Due Date

03/28/2014

Assigned to Department

ESD Collections

Assigned to

Alvaro Canales

Assigned Date

03/28/2014

Status Date *

03/31/2014

Status *

- Select--
- Select--
- Cancel
- Complete NO BILL
- Complete To Be INVOICED
- Pending

Start Time

: :

End Time

: :

Comments

[Standard Comment](#)

[check spelling](#)



Startup Costs:

	Per Unit Cost	Total annual Cost	
iPhone apps upgrade			
Development Fee	\$0	\$0	
Annual Maintenance cost	\$6,000	\$6,000	
iPhone cost	\$0	\$0	If upgraded from current contract, no charge
Phone air time service fee	\$23	\$3864	Cost for iPhone upgrade/driver
iPhone case, charger	\$50	\$700	each driver
Incidental costs (overage)		\$1200	all drivers
Total Costs		\$11,764	

*Based on pilot program of 14 drivers



ROI

What is the ROI?

Cannot be Quantified

•Some of the Gains:

- Improved Customer Service Experience
- Savings in Fuel on go backs
- Less time for drivers in documentation
- Less time for supervisors used on researching complaints
- 311 Call Center more effective use of their time





Results:

- Drivers like the app.
 1. They like the efficiency.
 2. Easier to log, and more people actually log now.
 3. Non “tech savvy” drivers slowly coming around.
- 311 approves
- Supervisors make better use of their time
- Makes us a Green organization. (paperless)
- Eliminate the storage of thousands of photos
- Recognitions:
 1. Accela Engage Conference 2013
 2. Central Texas CIO(Chief Information Officer) Conference 2013
 3. Government Technology Magazine
- Best of all, customers get timely responses



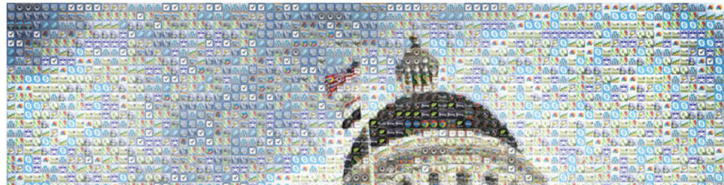
Results:

A screenshot of the Government Technology website header. At the top, there is a banner with the text "SOLUTIONS FOR STATE AND LOCAL GOVERNMENT" and "GOVERNMENT TECHNOLOGY" in large, bold letters. To the right of the banner, there is a small advertisement for AT&T with the text "AT&T has the expertise to mobilize your government services without rip and replace." and a "Learn more" button. Below the banner, there is a navigation menu with links for "SUBSCRIBE / NEWS / EVENTS / REPORTS / VIDEO / MAGAZINE / JOBS / ADVERTISE / CENTER FOR DIGITAL GOVERNMENT / ABOUT / MORE". A search bar is located on the right side of the header.

Building Addictive Mobile Apps for Citizens and Employees

How to build mobile applications that users can't live without.

BY BRIAN HEATON / OCTOBER 24, 2013



AS SEEN IN NOVEMBER 13 ISSUE





Results:

Find a specific issue people are frustrated with, and use the app to address it. Don't make an app just to make an app. Some of the most successful government-run apps have clearly focused on a citizen need, such as real-time parking space availability.

4. Embrace Flexibility

The design of an app should be done with re-use and sharing in mind. Agencies also should make sure they have the resources to continually update the app to work on existing and future operating systems.

driver's route and entered into the city computer system, but it could take several days for that information to be available to residents.

Now when drivers spot a garbage can that can't be emptied, they use the app to take a picture of it and upload a report to the city's central database in real time.

SOLVE A PROBLEM

Ultimately an app must deliver value. If an app is full of interesting features but doesn't actually accomplish a tangible task or solve a problem, it likely won't attract regular users.

Blackman pointed to an app created by El Paso, Texas, that helps give citizens a quicker explanation for missed garbage pickups. Previously, garbage truck drivers wrote out a paper ticket when they couldn't pick up a can that was overflowing, contained hazardous waste or had some other problem. The ticket was returned to the office at the end of the





What's Next:

- Implement City wide with all drivers
 - Purchase smart phones for all drivers
 - Includes: protective case, vehicle charger
 - More training
- Develop reports in accelera to track usage, and violation frequencies.
- Add additional functions.
- Development of new apps for our other divisions.



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Any Questions?