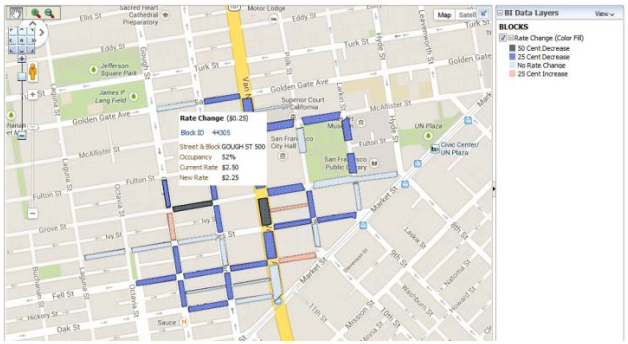
San Francisco MTA SF*park* Parking Management

SFMTA Municipal Transportation Agency

SFpark

OVERVIEW

- The SFMTA manages surface transportation in San Francisco
- System enables:
  - Asset management of complex parking space data
  - Creates a single source of truth between other systems, meter vendors, and customer facing parking meters
  - Demand-responsive parking meter rate adjustments



CHALLENGES / OPPORTUNITIES

- Business process engineering/re-engineering
- Reconciling multiple data sources involved in workflow
- Integrating disparate datasets

SOLUTIONS

- Oracle 11g RDBMS, ODI, and SOA Suite
- Oracle 11g Business Intelligence Enterprise Edition
- MapViewer
- Deployed Oracle Spatial data in internal and external web portals and mobile applications using GeoServer and ADF

RESULTS

- Manages location, regulation, and complex meter rate configuration for 29,000 on-street parking spaces
- Reconciles tens of thousands of meter configurations against four meter vendors
- Supports operations of Parking Division
- Facilities complex analyses of data across multiple spatial and temporal dimensions
- Metadata standardizes analyses and asset management improves workflow

May 2014

Oracle Spatial Summit

ORACLE

May 21, 2014
Walter E. Washington Convention Center
Washington, DC USA

Alex Demisch
Donovan Corliss
San Francisco Municipal Transportation Agency

The SFMTA's SF*park* Program

Multidimensional analytic models for demand-based parking pricing in San Francisco

Program Agenda

- SF*park* Program Background
- Demand-Responsive Rate Adjustments
- Parking Space Asset Management
- Analytics
- Lessons Learned

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The SFMTA

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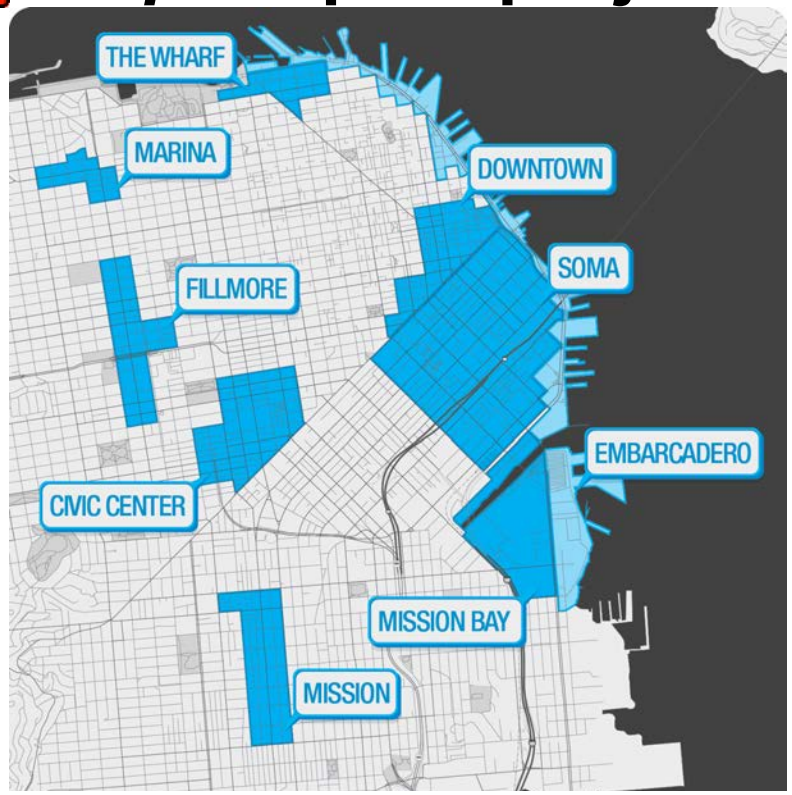
SF*park* pilot project



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Meter Rate Adjustment Rules

Parking Occupancy Range	Meter Rate Adjustment
80% - 100%	+$0.25
60% - 80%	No change
30% - 60%	-$0.25
0 - 30%	-$0.50

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Pricing at parking meters and lots

- Demand responsive to find lowest possible prices
- Gradual and periodic changes: $0.25 up or down every 6-8 weeks
- Time of day pricing (vary by block + weekday/end)

Duration	Price Per Hour
9AM – 12AM	$2.50
12AM – 3PM	$3.50
3PM – 6PM	$2.00

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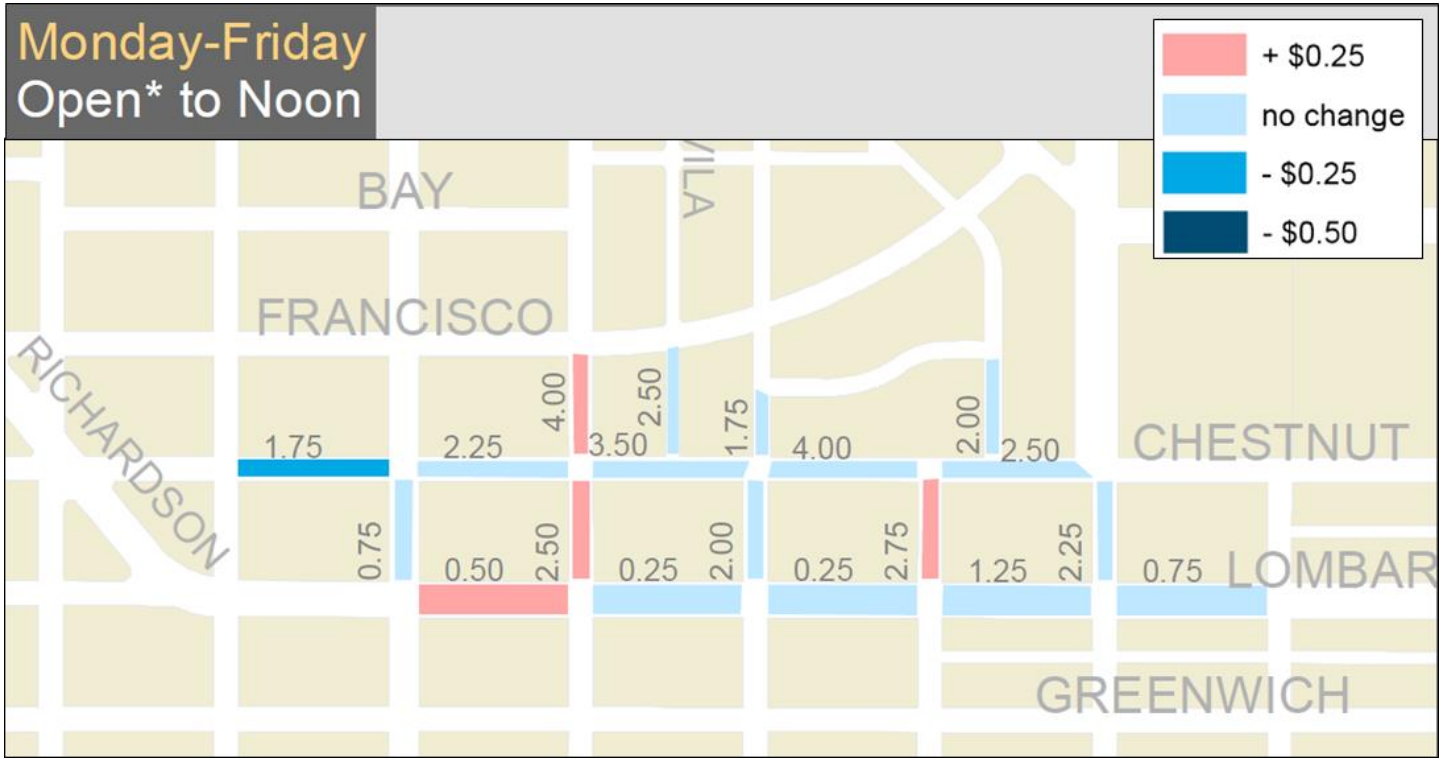
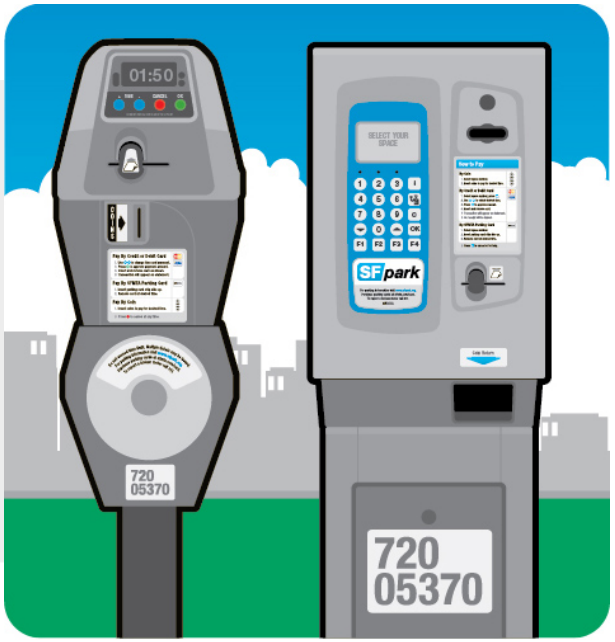
Demand responsive rate adjustments



Parking sensors and meters



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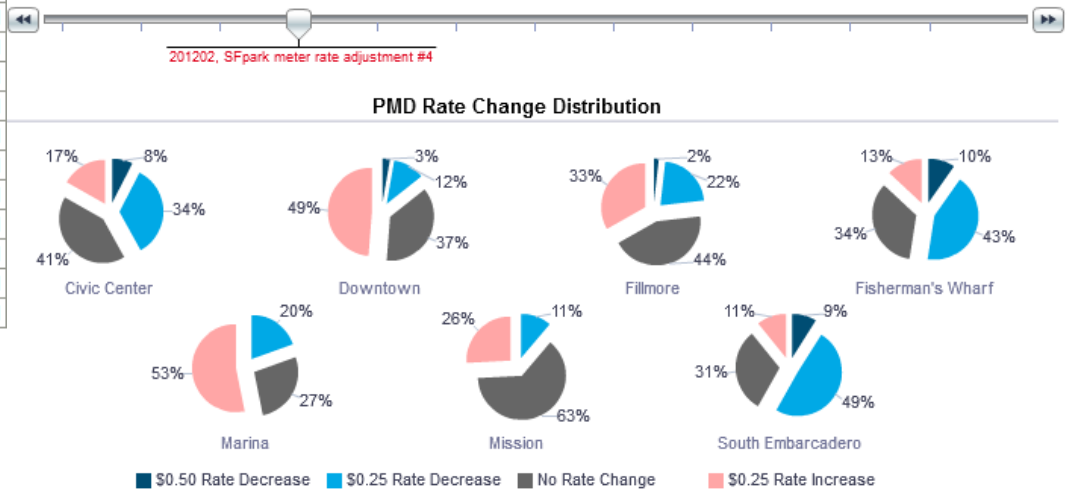
Data-Driven Parking Management

Description	Rate Change Reference	Effective Date	Status
Initial meter rates	201001	1/1/2010	Implemented
SFpark meter rate adjustment #1	201108	8/1/2011	Implemented
SFpark meter rate adjustment #2	201110	10/11/2011	Implemented
SFpark meter rate adjustment #3	201112	12/13/2011	Implemented
SFpark meter rate adjustment #4	201202	2/14/2012	Implemented
SFpark meter rate adjustment #5	201203	3/28/2012	Implemented
SFpark meter rate adjustment #6	201204	5/8/2012	Implemented
SFpark meter rate adjustment #7	201208	8/29/2012	Implemented
SFpark meter rate adjustment #8	201210	10/31/2012	Implemented
SFpark meter rate adjustment #9	201301	1/16/2013	Implemented
SFpark meter rate adjustment #10	201303	4/3/2013	Implemented
SFpark meter rate adjustment #11	201308	8/21/2013	Implemented
SFpark meter rate adjustment #12	201311	11/20/2013	Implemented



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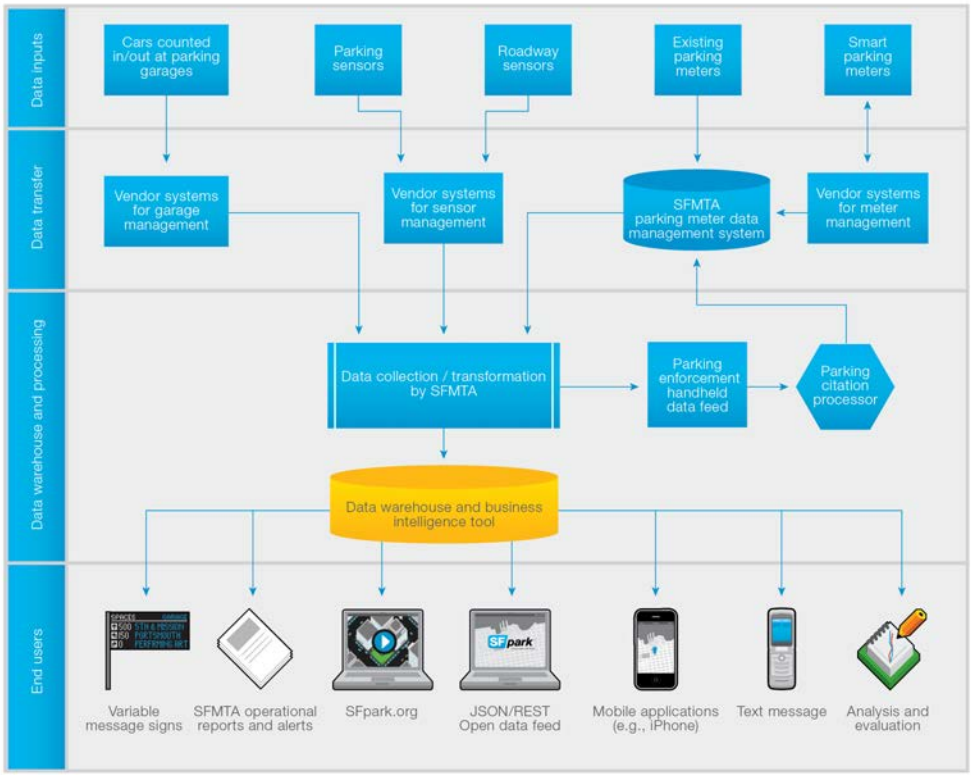
Simplified Technical Overview



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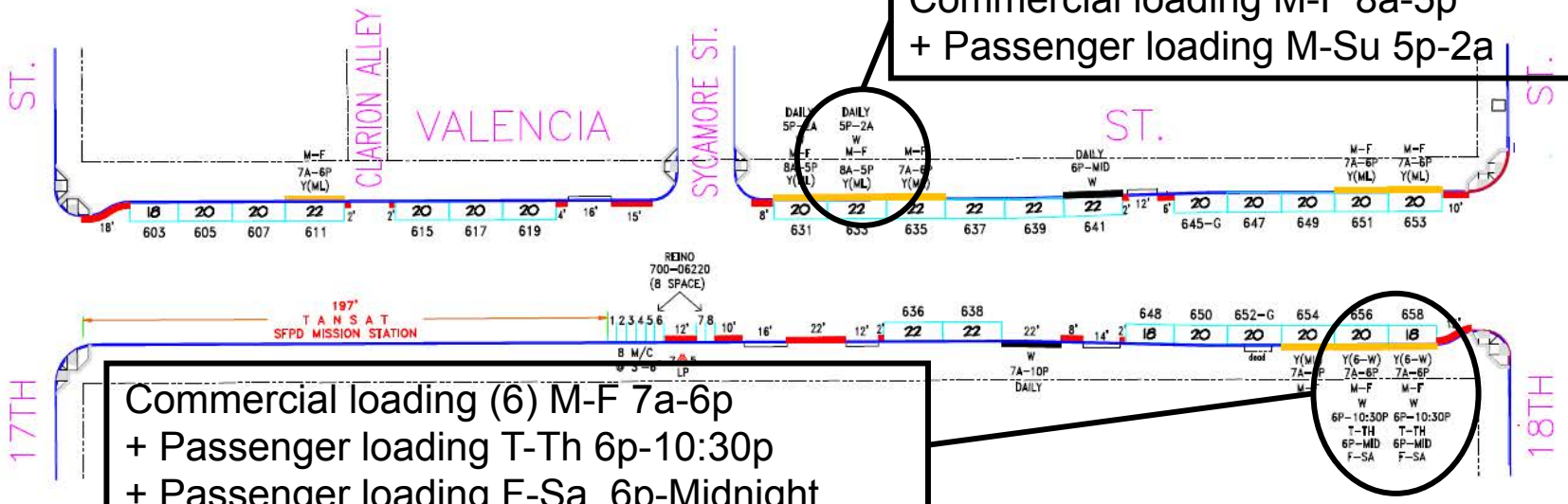
Parking meter drawings

Commercial loading M-F 8a-5p
+ Passenger loading M-Su 5p-2a

Commercial loading (6) M-F 7a-6p
+ Passenger loading T-Th 6p-10:30p
+ Passenger loading F-Sa 6p-Midnight



NO.	REVISION DESCRIPTION	BY	DATE	DIR/RES	NO.	REVISION DESCRIPTION	BY	DATE	DIR/RES
1	New P. meters on new streetscape	JB	9/09/09		4	Establish PT-PLZ #641	JB	12/3/10	3800
2	Establish #631 & 633 to ML & PLZ	JB	1/13/10	3694	5	MOS #652	JB	8/13/10	

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY
CITY AND COUNTY OF SAN FRANCISCO
PARKING METER SPACES

	TOW-AWAY		METER CT.		GENERAL				LOADING			METERED SPACES						
SIDE	AM	PM	SS	MS	GMP	MC	TIMES	DAYS	ML	MTL	6-W	15 MIN	30 MIN	1 HR	2 HR	10 HR		TOTAL
ODD			18		12		9A-6P	M-SA	6				6	12				18
EVEN			8	1	5	8	9A-6P	M-SA	1		2		3	5		8		16

VALENCIA ST. (VAL, 700)
(600) BLOCK
Meters #700-06XXY
17TH ST. TO 18TH ST.
SCALE 1"=50' DATE 9/09/09 BY JB

AREA 3

Growing Complexity of Meter Configurations

	Area	Location	Days	Times	Rate	Limit
OLD	3	Neighborhoods	Mo-Sa	9am-6pm	$2.00/hr	1-hr

	Area	Location	Days	Times	Rate	Limit
NEW	MI	Valencia St 600	Mo-Fr	7am-12pm	$2.00/hr	4-hr
	MI	Valencia St 600	Mo-Fr	12pm-3pm	$3.50/hr	4-hr
	MI	Valencia St 600	Mo-Fr	3pm-6pm	$3.75/hr	4-hr
	MI	Valencia St 600	Sa	9am-12pm	$0.75/hr	4-hr
	MI	Valencia St 600	Sa	12pm-3pm	$3.25/hr	4-hr
	MI	Valencia St 600	Sa	3pm-6pm	$3.75/hr	4-hr

Spatial Hierarchy

1. Parking Management District
2. Block
3. Blockface
4. Parking Space

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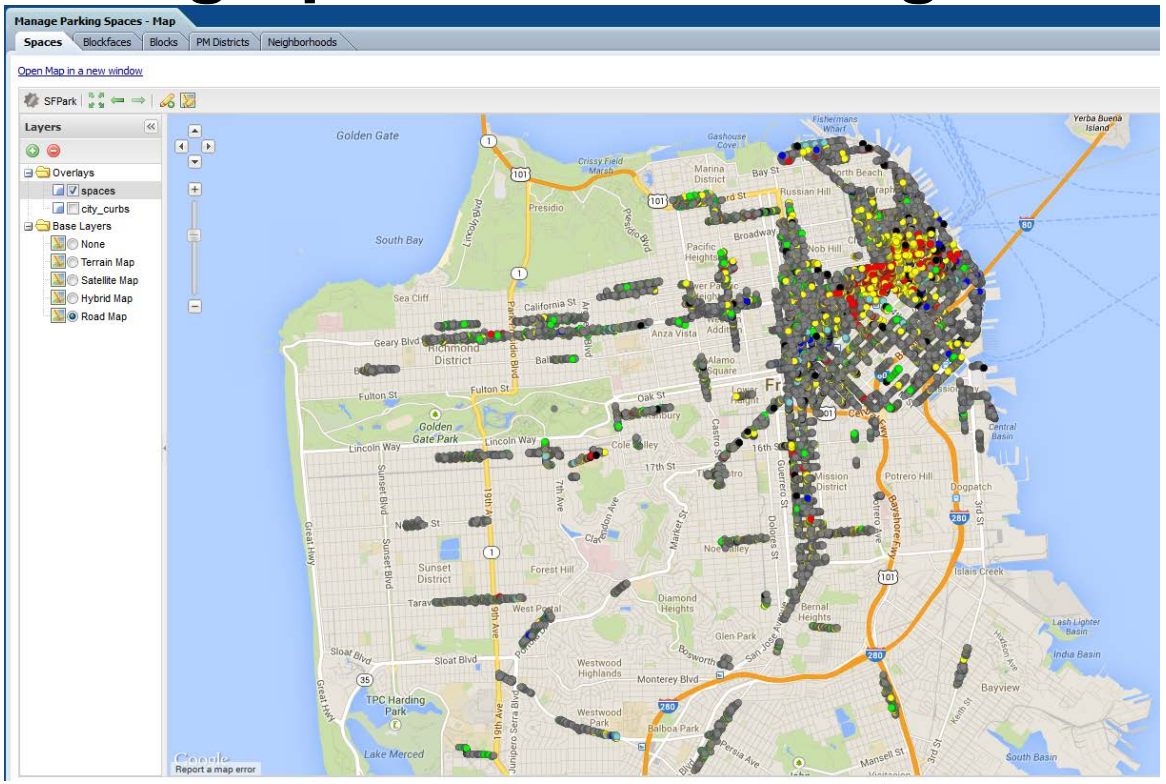
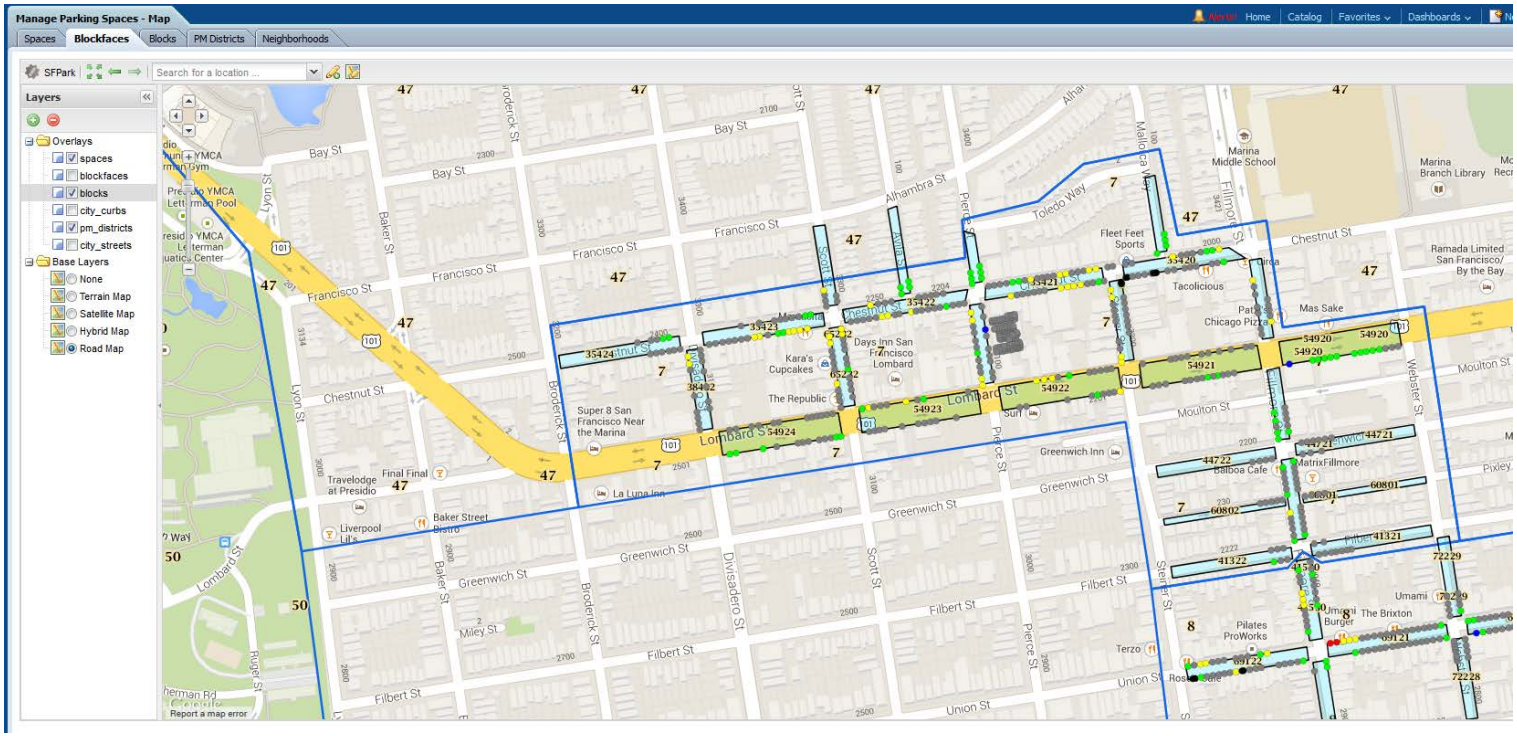
D E M O N S T R A T I O N

Parking Space Asset Management System

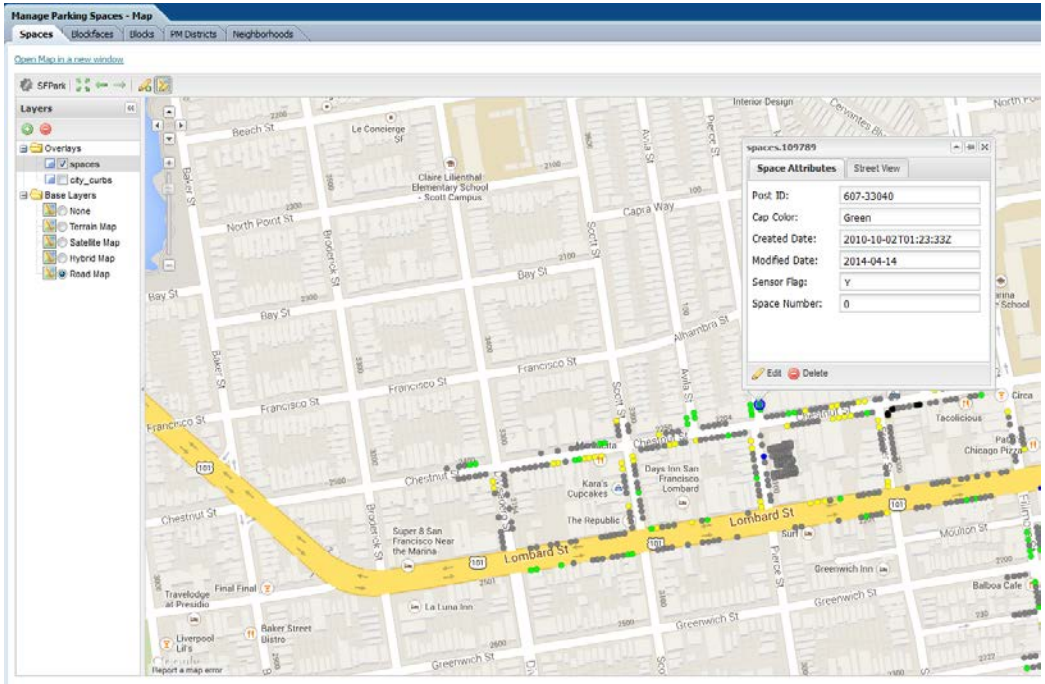
Parking Space Asset Management



Parking Space Asset Management



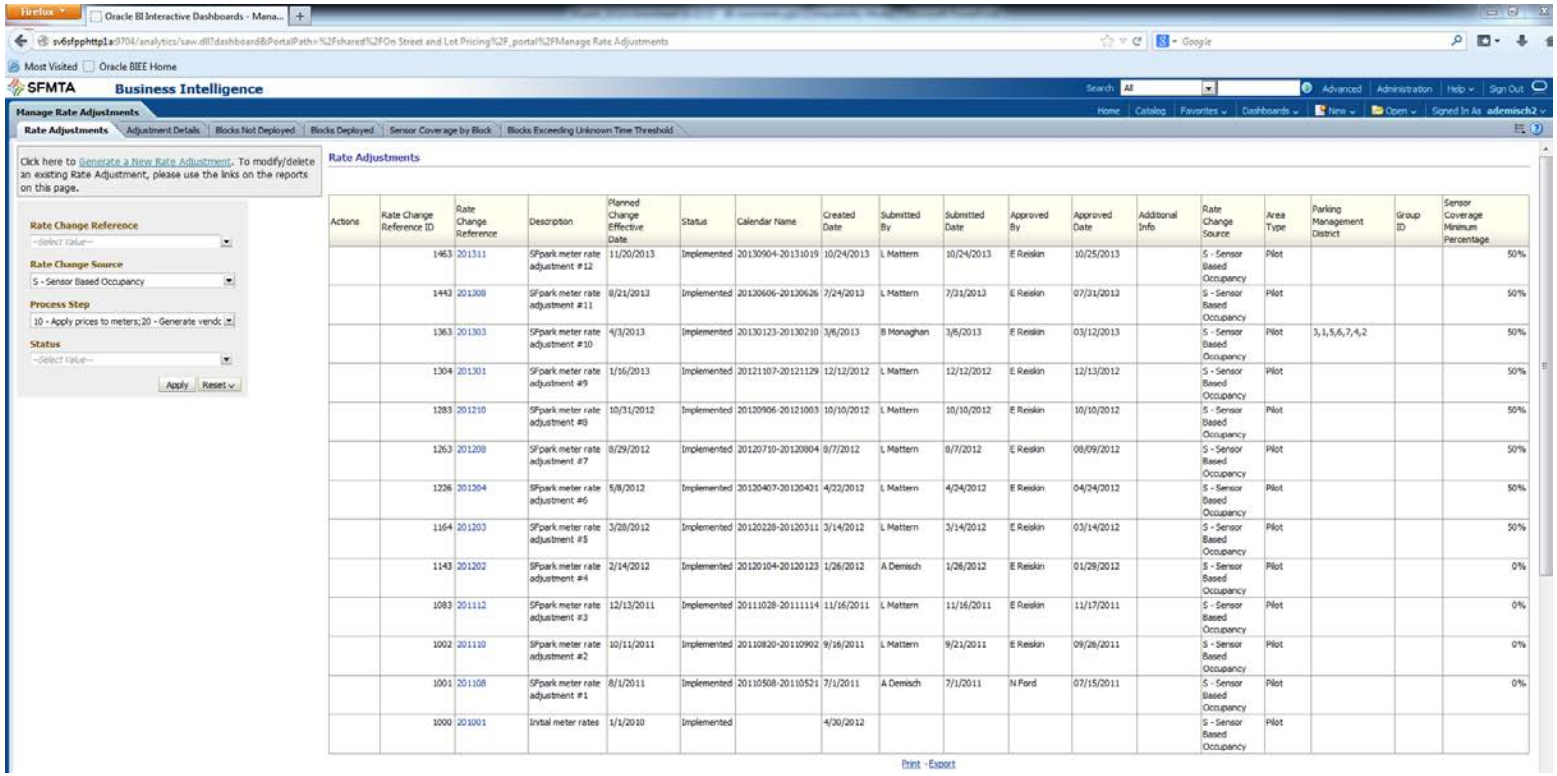
Parking Space Asset Management



Parking Space Asset Management

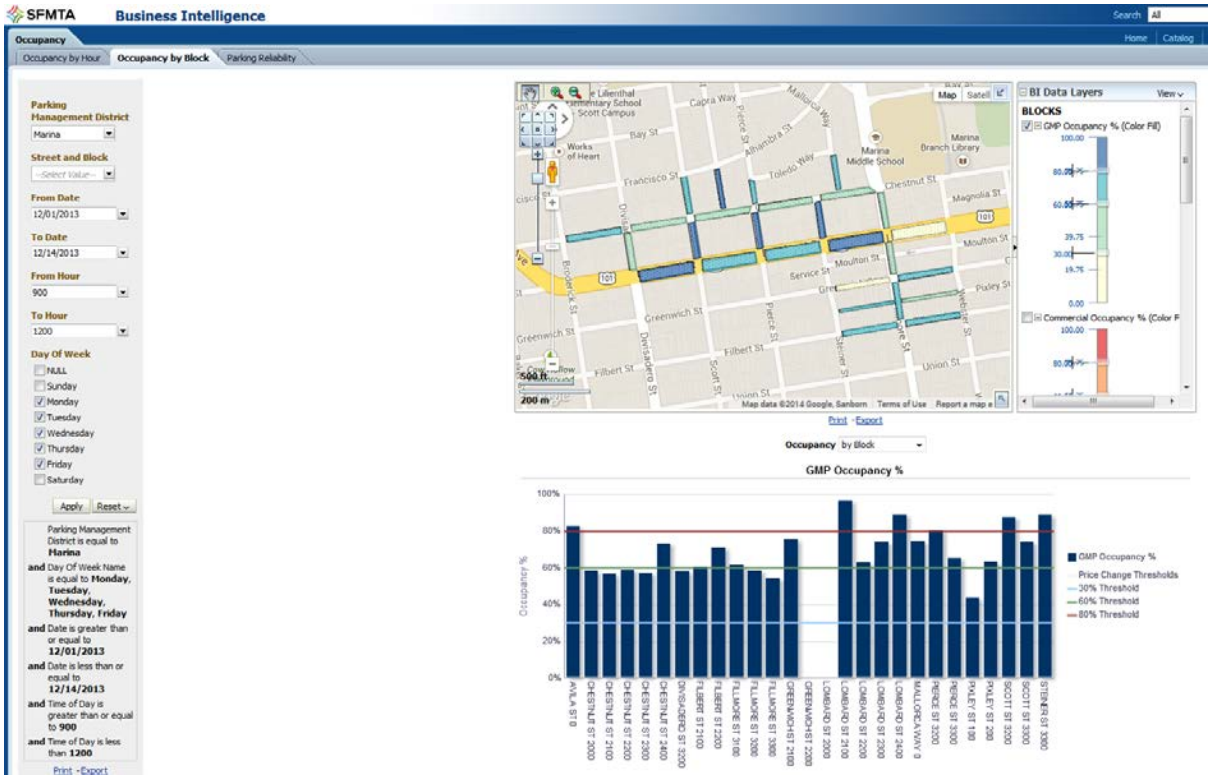
END DEMO

Managing Rate Adjustments



Actions	Rate Change Reference ID	Rate Change Reference	Description	Planned Change Effective Date	Status	Calendar Name	Created Date	Submitted By	Submitted Date	Approved By	Approved Date	Additional Info	Rate Change Source	Area Type	Parking Management District	Group ID	Sensor Coverage Minimum Percentage
	1463	201311	SFpark meter rate adjustment #12	11/20/2013	Implemented	20130904-20131019	10/24/2013	L Mattern	10/24/2013	E Reiskin	10/25/2013		5 - Sensor Based Occupancy	Pilot			50%
	1443	201308	SFpark meter rate adjustment #11	8/21/2013	Implemented	20130606-20130626	7/24/2013	L Mattern	7/31/2013	E Reiskin	07/31/2013		5 - Sensor Based Occupancy	Pilot			50%
	1363	201303	SFpark meter rate adjustment #10	4/3/2013	Implemented	20130123-20130210	3/6/2013	B Monaghan	3/6/2013	E Reiskin	03/12/2013		5 - Sensor Based Occupancy	Pilot	3,1,5,6,7,4,2		50%
	1304	201301	SFpark meter rate adjustment #9	1/16/2013	Implemented	20121107-20121129	12/12/2012	L Mattern	12/12/2012	E Reiskin	12/13/2012		5 - Sensor Based Occupancy	Pilot			50%
	1283	201210	SFpark meter rate adjustment #8	10/31/2012	Implemented	20120906-20121003	10/10/2012	L Mattern	10/10/2012	E Reiskin	10/10/2012		5 - Sensor Based Occupancy	Pilot			50%
	1263	201208	SFpark meter rate adjustment #7	8/29/2012	Implemented	20120710-20120804	8/7/2012	L Mattern	8/7/2012	E Reiskin	08/09/2012		5 - Sensor Based Occupancy	Pilot			50%
	1226	201204	SFpark meter rate adjustment #6	5/8/2012	Implemented	20120407-20120421	4/22/2012	L Mattern	4/24/2012	E Reiskin	04/24/2012		5 - Sensor Based Occupancy	Pilot			50%
	1164	201203	SFpark meter rate adjustment #5	3/28/2012	Implemented	20120228-20120311	3/14/2012	L Mattern	3/14/2012	E Reiskin	03/14/2012		5 - Sensor Based Occupancy	Pilot			50%
	1143	201202	SFpark meter rate adjustment #4	2/14/2012	Implemented	20120104-20120123	1/26/2012	A Demisch	1/26/2012	E Reiskin	01/29/2012		5 - Sensor Based Occupancy	Pilot			0%
	1083	201112	SFpark meter rate adjustment #3	12/13/2011	Implemented	20111028-20111114	11/16/2011	L Mattern	11/16/2011	E Reiskin	11/17/2011		5 - Sensor Based Occupancy	Pilot			0%
	1002	201110	SFpark meter rate adjustment #2	10/11/2011	Implemented	20110820-20110902	9/16/2011	L Mattern	9/21/2011	E Reiskin	09/26/2011		5 - Sensor Based Occupancy	Pilot			0%
	1001	201108	SFpark meter rate adjustment #1	8/1/2011	Implemented	20110508-20110521	7/1/2011	A Demisch	7/1/2011	N Ford	07/15/2011		5 - Sensor Based Occupancy	Pilot			0%
	1000	201001	Initial meter rates	1/1/2010	Implemented		4/30/2012						5 - Sensor Based Occupancy	Pilot			

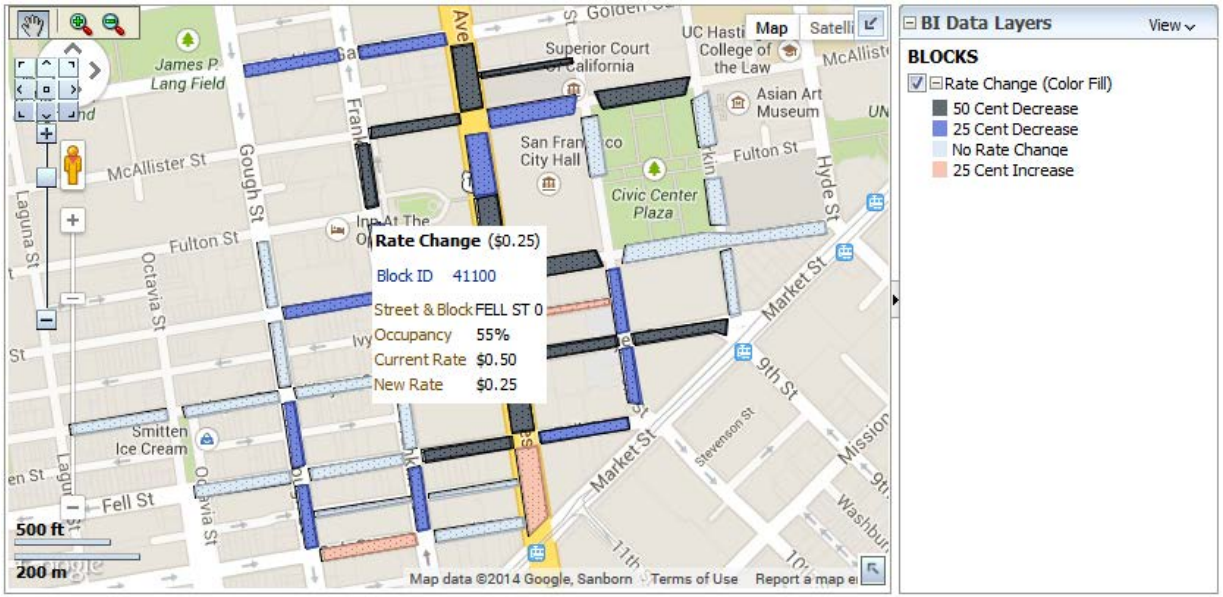
Calculating parking occupancy rates



Generating Rate Recommendations

Rate Change Source	S - Sensor Based Occupancy
Rate Change Reference	201311
Date Type	Weekend
Time Band	Time Band 1
Parking Management District Name	Civic Center

Apply Reset



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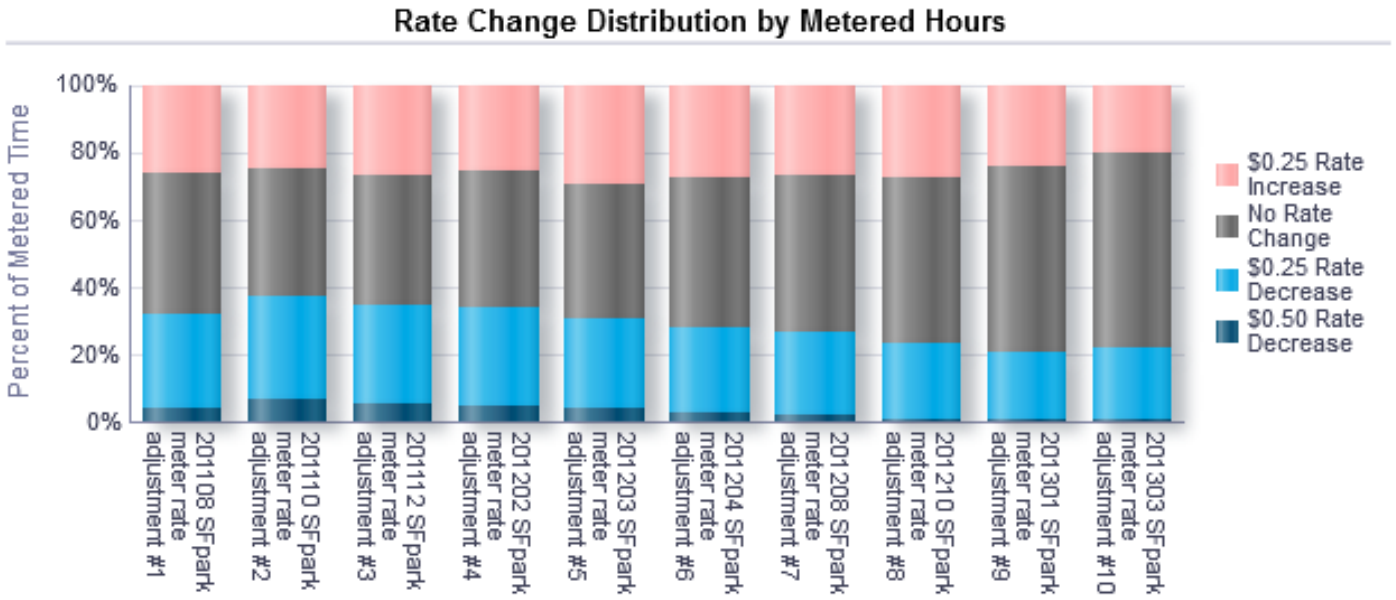
Rate Adjustment Analysis



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Rate Adjustment Analysis

Rate Change Reference Description	201001 Initial meter rates		201108 SFpark meter rate adjustment #1		201110 SFpark meter rate adjustment #2		201112 SFpark meter rate adjustment #3		201202 SFpark meter rate adjustment #4		201203 SFpark meter rate adjustment #5		201204 SFpark meter rate adjustment #6		201208 SFpark meter rate adjustment #7		201210 SFpark meter rate adjustment #8		201301 SFpark meter rate adjustment #9		201303 SFpark meter rate adjustment #10	
	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week	Meter Operating Hours per Week	% of Total Meter Operating Hours per Week
Rate																						
$0.25									99	0.0%	1,242	0.4%	5,934	1.9%	15,394	4.7%	19,990	6.1%	24,791	7.5%	66,208	16.4%
$0.50									1,143	0.4%	2,953	0.9%	8,721	2.7%	5,077	1.6%	8,184	2.5%	10,527	3.2%	17,237	4.3%
$0.75							549	0.2%	915	0.3%	8,588	2.7%	7,904	2.5%	9,989	3.1%	13,164	4.0%	17,210	5.2%	11,053	2.7%
$1.00							903	0.3%	10,842	3.4%	10,466	3.3%	10,294	3.2%	13,154	4.0%	13,459	4.1%	8,830	2.7%	15,437	3.8%
$1.25					612	0.2%	10,850	3.8%	8,985	2.8%	10,519	3.3%	12,550	3.9%	14,883	4.6%	11,500	3.5%	13,867	4.2%	12,938	3.2%
$1.50			9	0.0%	13,530	4.7%	11,616	4.0%	12,744	4.0%	14,667	4.6%	20,456	6.4%	16,587	5.1%	20,121	6.1%	13,294	4.0%	18,155	4.5%
$1.75			16,122	5.6%	17,478	6.1%	16,125	5.6%	22,400	7.0%	28,271	8.9%	18,718	5.9%	21,899	6.7%	13,661	4.1%	18,423	5.6%	21,845	5.4%
$2.00	115,641	40.5%	57,299	20.1%	41,730	14.5%	41,635	14.5%	51,774	16.2%	36,542	11.4%	42,366	13.2%	35,191	10.8%	32,261	9.8%	29,419	8.9%	27,014	6.7%
$2.25			42,211	14.8%	24,720	8.6%	37,573	13.1%	28,653	9.0%	31,182	9.8%	18,420	5.8%	18,108	5.6%	17,873	5.4%	16,272	4.9%	16,298	4.0%
$2.50			6,177	2.2%	61,071	21.3%	24,410	8.5%	32,221	10.1%	24,943	7.8%	17,874	5.6%	18,898	5.8%	19,526	5.9%	18,340	5.5%	20,555	5.1%
$2.75			36,587	12.8%	19,140	6.7%	51,904	18.1%	21,183	6.6%	17,775	5.6%	22,288	7.0%	14,995	4.6%	14,538	4.4%	13,881	4.2%	12,651	3.1%
$3.00	83,680	29.3%	33,989	11.9%	31,701	11.0%	18,164	6.3%	45,302	14.2%	27,725	8.7%	22,990	7.2%	23,861	7.3%	19,707	6.0%	16,241	4.9%	18,296	4.5%
$3.25			39,560	13.9%	18,995	6.6%	14,338	5.0%	15,070	4.7%	35,378	11.1%	16,623	5.2%	16,570	5.1%	19,328	5.9%	15,448	4.7%	18,988	4.7%
$3.50	86,262	30.2%	37,351	13.1%	38,496	13.4%	29,033	10.1%	29,929	9.4%	22,822	7.1%	45,176	14.1%	32,887	10.1%	28,724	8.7%	29,714	9.0%	24,158	6.0%
$3.75			16,278	5.7%	8,062	2.8%	14,451	5.0%	12,923	4.0%	12,871	4.0%	12,112	3.8%	27,437	8.4%	17,495	5.3%	15,240	4.6%	21,144	5.2%
$4.00					11,800	4.1%	6,433	2.2%	12,331	3.9%	11,206	3.5%	8,538	2.7%	8,715	2.7%	25,577	7.7%	17,117	5.2%	19,220	4.8%
$4.25							9,351	3.3%	4,599	1.4%	11,526	3.6%	8,831	2.8%	6,880	2.1%	7,139	2.2%	22,586	6.8%	17,263	4.3%
$4.50									8,253	2.6%	3,183	1.0%	10,522	3.3%	7,625	2.3%	5,174	1.6%	5,149	1.6%	18,875	4.7%
$4.75											7,536	2.4%	2,893	0.9%	9,690	3.0%	6,793	2.1%	4,544	1.4%	5,207	1.3%
$5.00													6,611	2.1%	2,244	0.7%	8,740	2.6%	7,115	2.2%	5,734	1.4%
$5.25															5,931	1.8%	2,194	0.7%	6,525	2.0%	4,483	1.1%
$5.50																	4,971	1.5%	2,686	0.8%	6,983	1.7%
$5.75																			3,288	1.0%	2,106	0.5%
$6.00																					2,370	0.6%
Grand Total	**285,583**	**100.0%**	**285,583**	**100.0%**	**287,335**	**100.0%**	**287,335**	**100.0%**	**319,366**	**100.0%**	**319,395**	**100.0%**	**319,821**	**100.0%**	**326,015**	**100.0%**	**330,119**	**100.0%**	**330,507**	**100.0%**	**404,218**	**100.0%**

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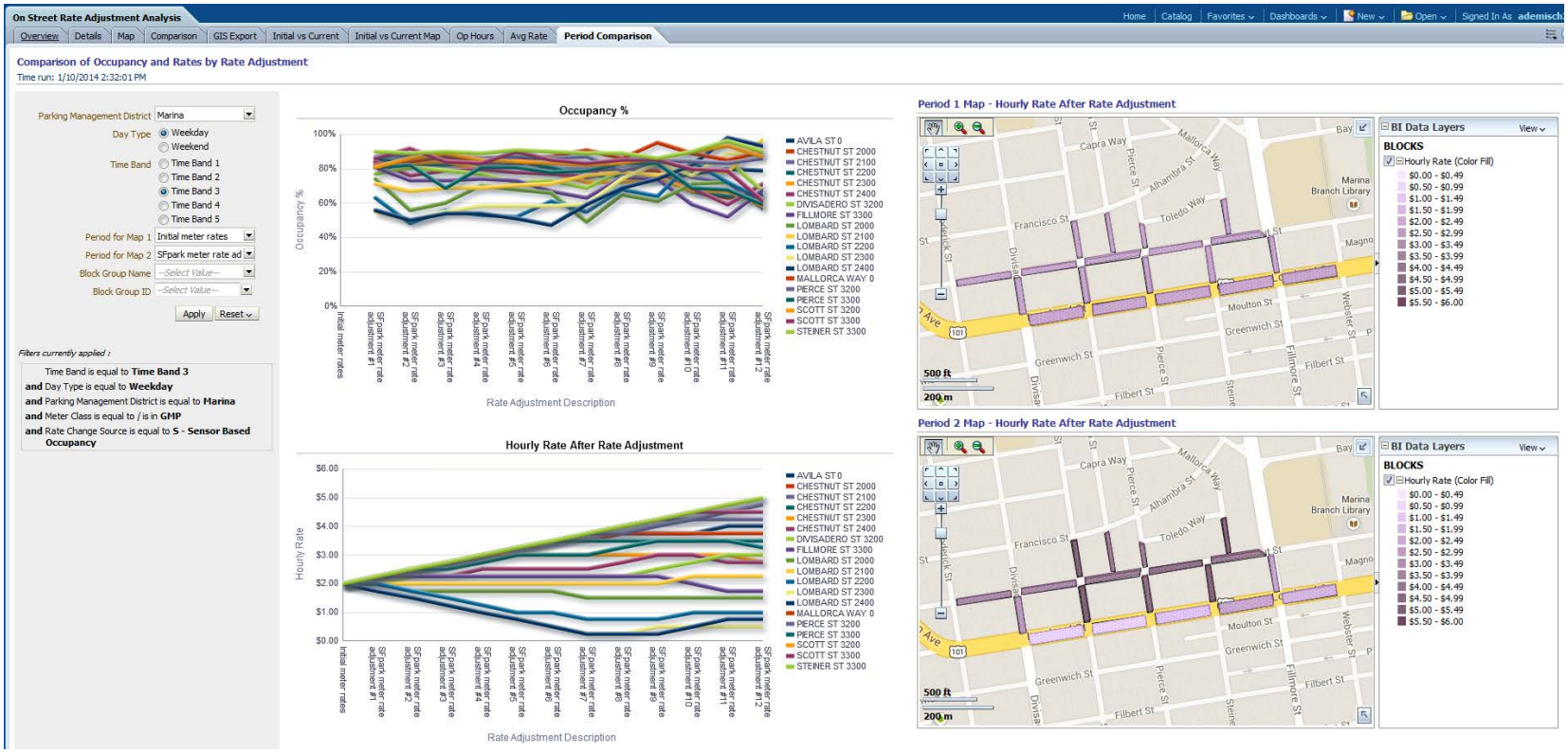
Rate Adjustment Analysis



Pilot Project Evaluation Data

- Supply data (census, asset management)
- Parking data (from sensors, meters, and citations)
- Garage data (usage by hour)
- Travel demand data (roadway sensors, highways PEMS, BART, Muni)
- Muni data (travel time data from APCs)
- Sales tax and parking tax
- Manual surveys (parking search time, double parking, disabled placards)
- Intercept surveys (professional survey firm)

SFMTA Municipal Transportation Agency SFpark

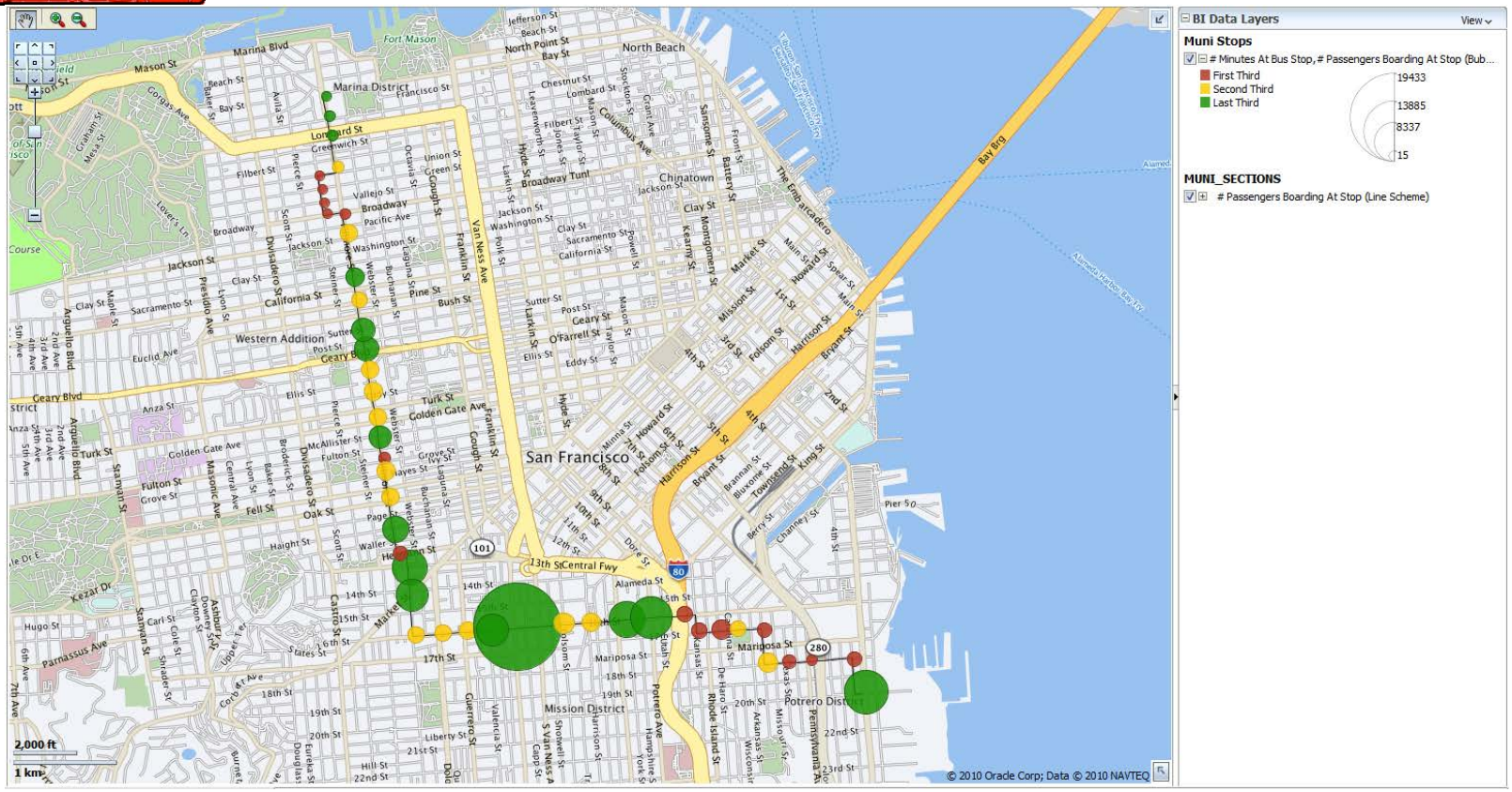
Transit Data

Transit Average Speed Heat Map

22 Fillmore - Outbound 2013

		Speed																						
		12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
Assigned Stop Sequence ID	Stop Name																								
1	Fillmore St&Bay St SE-NS/BZ	12.0	13.0	12.8	11.7	11.6	12.9	8.8	9.3	8.6	6.5	5.7	16.0	2.6		8.0	6.2	1.0	10.8	6.0	0.2	8.8	10.9	9.9	11.1
2	Fillmore St&North Point St SE-NS/PS	2.7	1.7	3.1	1.4	2.2	3.0	2.2	3.1	3.2	3.5	3.3	4.8	4.0	5.4	4.2	4.4	4.2	3.7	4.2	2.9	2.5	3.5	3.6	3.1
3	Fillmore St&Beach St SE-NS/BZ	15.1	14.6	14.7	14.3	16.0	14.7	14.9	14.0	14.3	13.5	13.5	13.4	13.9	13.6	14.1	13.7	13.5	12.2	13.4	14.2	14.1	14.3	15.0	14.6
4	Fillmore St&Jefferson St SW-FS/BZ	14.3	14.7	14.4	14.8	16.0	14.2	12.6	14.5	13.1	12.6	12.5	13.0	12.2	11.8	12.7	13.0	12.2	11.1	10.3	13.0	14.4	12.9	14.2	14.5
5	Fillmore St&Beach St NW-NS/BZ	10.1	10.4	10.2	9.5	10.2	9.6	10.1	9.5	9.4	9.2	9.3	8.9	9.1	8.8	8.5	8.6	9.3	8.1	9.5	9.3	9.4	10.0	10.2	10.1
6	Fillmore St&Cervantes Blvd NW-NS	13.4	14.9	13.7	12.7	13.1	13.8	10.9	10.1	9.9	10.4	10.8	10.7	9.7	9.2	9.9	9.6	9.1	9.3	10.2	11.4	12.1	12.5	13.3	13.4
7	Fillmore St&Chestnut St NW-NS/BZ	14.0	16.0	14.1	13.9	13.5	13.0	10.6	9.5	8.6	9.7	10.6	10.5	10.1	9.9	10.7	9.6	9.0	8.7	9.6	11.2	11.8	12.9	14.0	14.9
8	Fillmore St&Lombard St SW-FS/BZ	5.7	5.9	6.3	6.1	6.5	6.6	5.9	4.7	4.2	4.0	3.9	3.5	3.4	3.4	3.4	3.1	3.7	3.6	3.2	3.5	3.7	4.4	4.3	4.6
9	Union St&Fillmore St NW-FS/BZ	6.0	5.9	6.7	8.7	9.1	8.6	7.9	6.8	6.0	5.9	5.9	5.3	5.2	5.1	5.0	4.9	4.9	4.9	5.3	5.4	5.8	6.1	5.9	5.7
10	Steiner St&Union St SW-FS/BZ	6.0	6.9	7.3	7.8	8.9	8.0	7.6	6.4	5.8	5.6	5.3	5.0	4.7	4.4	4.7	4.5	4.8	4.7	4.9	5.0	5.3	5.6	5.9	5.9
11	Steiner St&Green St W-MI/PS	6.8	7.4	7.3	7.3	7.7	7.2	6.8	5.9	5.3	5.3	5.5	5.2	5.0	5.0	5.3	4.7	5.3	5.1	5.3	5.5	5.8	5.7	6.4	6.7
12	Steiner St&Vallejo St W-MI/PS	10.0	10.4	10.6	9.9	10.8	9.7	9.8	8.8	8.9	9.0	9.1	8.8	8.9	8.9	8.8	8.8	9.3	8.5	9.2	9.2	8.7	9.7	9.8	9.7
13	Broadway&Steiner St SE-FS/PS	8.6	9.0	8.9	8.5	9.1	8.4	8.6	8.2	8.0	7.9	8.1	7.8	7.8	7.7	8.0	7.6	7.8	7.7	7.9	8.2	8.1	8.3	8.7	8.5
14	Fillmore St&Broadway SW-FS/BZ	8.7	9.0	9.0	8.9	9.3	8.3	8.6	8.3	7.7	8.2	8.3	8.1	8.0	8.0	8.0	7.5	7.7	7.9	8.0	8.2	8.3	8.3	8.7	8.9
15	Fillmore St&Jackson St SW-FS/BZ	9.3	8.6	9.3	9.4	9.8	9.0	9.1	7.2	6.1	7.3	7.2	6.9	7.2	7.0	6.7	6.2	6.7	6.7	7.0	7.5	8.1	8.1	8.7	8.8
16	Fillmore St&Sacramento St NW-NS/BZ	8.0	7.1	9.2	9.6	9.7	8.2	7.1	7.0	5.9	6.3	5.9	5.3	6.0	5.6	5.7	5.5	5.5	5.9	6.1	6.6	7.1	7.4	6.6	8.2
17	Fillmore St&Pine St SW-FS/BZ	7.5	8.2	8.1	6.4	7.7	7.0	6.9	6.1	5.7	5.4	5.0	4.5	4.3	4.3	4.4	4.3	4.4	4.6	4.6	5.3	5.7	6.1	6.5	6.5
18	Fillmore St&Sutter St SW-FS/BZ	7.5	7.9	8.1	8.7	7.3	8.5	7.5	6.7	6.3	5.8	5.5	4.9	4.7	4.5	4.6	4.4	4.6	4.6	4.5	5.1	5.5	6.0	6.2	6.0
19	Fillmore St&Geary Blvd SW-FS/BZ	6.5	7.2	7.1	7.4	7.3	7.4	6.9	6.1	5.6	5.2	5.1	4.4	4.6	4.4	4.6	4.6	4.5	4.5	4.7	4.9	5.2	5.5	5.9	6.0
20	Fillmore St&O'Farrell St SW-FS/BZ	5.5	7.0	6.1	7.9	7.8	7.7	5.5	5.0	4.4	4.2	4.1	3.7	3.6	3.8	3.7	3.6	3.6	3.6	4.1	4.3	4.3	4.6	4.6	4.8
21	Fillmore St&Eddy St NW-NS/BZ	8.5	9.4	9.9	10.9	10.7	11.2	8.6	7.6	7.1	6.3	6.2	5.5	5.5	5.4	5.5	5.0	5.0	5.3	6.0	6.4	6.5	6.5	7.4	7.6
22	Fillmore St&Turk St SW-FS/BZ	6.6	7.5	8.0	9.6	8.4	8.2	6.2	5.5	5.2	5.1	5.1	4.8	4.6	4.6	4.7	4.7	5.0	4.9	5.2	5.7	5.8	5.7	5.8	6.2
23	Fillmore St&Mcallister St SW-FS/BZ	7.9	8.9	8.3	9.2	8.1	8.2	7.6	6.2	5.7	5.0	5.1	4.8	4.6	4.4	4.7	4.7	4.9	5.1	5.5	6.3	6.4	7.1	7.1	7.7
24	Fillmore St&Grove St NW-NS/BZ	7.1	8.3	8.4	8.8	8.4	8.1	5.9	5.3	5.0	4.8	4.7	4.5	4.7	4.5	4.7	4.7	4.7	4.8	5.1	5.7	5.6	5.9	5.9	6.3
25	Fillmore St&Hayes St SW-FS/BZ	11.0	11.9	10.8	11.3	10.8	11.0	10.3	7.1	8.1	8.3	8.2	7.8	8.0	7.8	7.9	6.9	6.7	6.8	7.7	8.7	9.1	9.4	9.1	9.9
26	Fillmore St&Oak St SW-FS/BZ	7.2	8.0	7.4	7.8	7.8	7.6	5.9	4.7	4.5	4.5	5.3	5.2	5.1	4.8	4.8	4.3	4.1	4.2	4.5	4.9	5.6	6.0	6.2	6.5
27	Fillmore St&Haight St NW-NS/BZ	7.9	9.5	9.1	9.6	9.6	8.9	6.1	5.1	4.8	5.0	6.7	6.6	6.6	6.2	6.2	6.3	6.2	6.1	6.1	6.5	6.8	7.0	7.6	7.7
28	Hermann St&Fillmore St SE-FS/BZ	7.8	8.8	8.2	8.9	8.4	8.5	7.5	6.6	6.0	6.0	6.0	5.6	5.6	5.7	5.6	5.4	5.5	5.6	5.8	6.3	6.4	6.6	6.6	6.8
29	Church St&Duboce Ave NW-NS/BZ	7.5	7.5	7.3	7.6	7.7	7.1	7.1	6.4	6.2	6.1	6.2	6.0	5.9	5.7	6.0	5.7	5.8	5.7	5.9	6.1	6.4	6.4	6.5	6.8
30	Church St&14th St NW-NS/SB	9.4	9.2	9.6	10.3	9.8	9.9	7.9	6.8	6.1	5.9	6.1	5.5	5.7	5.5	5.7	5.6	5.0	5.6	5.3	6.5	6.8	7.6	7.9	8.7
31	Church St&16th St NW-NS/SI	6.3	6.5	6.4	6.6	6.7	6.2	6.0	5.5	5.4	5.5	5.5	5.2	5.4	5.2	5.2	5.1	5.1	5.2	5.3	5.7	5.5	5.8	5.8	5.8
32	16th St&Dolores St SW-NS/PS	7.9	8.8	8.3	9.2	8.8	8.5	8.6	6.7	6.1	6.6	6.8	6.6	6.2	6.4	6.2	4.5	6.1	6.3	6.5	6.9	7.2	7.3	7.5	7.7
33	16th St&Guerrero St SW-NS/BZ	9.5	9.5	9.6	10.0	9.9	9.4	9.5	8.0	6.3	7.5	8.3	7.8	7.9	7.4	7.4	7.5	7.3	7.6	8.3	8.9	9.0	9.4	8.9	9.2
34	16th St&Valencia St SW-NS/BZ	9.8	9.6	10.7	11.3	10.4	11.0	11.8	9.5	6.4	8.0	8.5	7.8	7.4	7.1	7.7	7.4	6.7	6.5	6.5	7.1	7.8	8.6	8.7	9.0
35	16th St&Mission St SW-NS/BZ	6.6	7.1	7.8	8.8	9.2	7.3	7.1	6.2	5.3	5.5	5.8	5.5	4.9	5.1	5.2	5.1	4.9	4.8	5.1	5.4	5.8	6.2	6.0	6.0
36	16th St&Shotwell St SE-FS/BZ	6.2	6.9	5.3	5.3	4.8	5.2	5.3	4.4	3.9	4.2	4.5	4.0	3.9	3.9	4.1	4.3	4.2	4.3	4.7	5.3	5.4	5.7	5.7	5.7
37	16th St&Harrison St SW-NS/BZ	10.0	8.8	11.0	12.6	11.5	9.7	8.2	6.7	7.5	6.9	7.1	7.1	6.5	6.7	6.2	6.1	6.8	7.0	7.8	8.5	8.8	7.3	9.6	7.6
38	16th St&Bryant St SE-FS/BZ	6.9	8.8	10.7	12.5	12.0	10.5	8.3	7.4	8.1	6.8	7.6	6.5	6.5	7.2	6.8	6.0	7.4	8.2	8.7	8.2	7.8	6.2	7.6	6.8
39	16th St&Potrero Ave SW-NS/BZ	9.6	9.9	9.7	10.6	9.3	9.0	7.3	6.3	6.5	5.7	5.0	4.7	4.1	3.9	4.1	4.5	3.6	5.9	6.5	7.4	7.9	8.5	8.3	9.5
40	16th St&San Bruno Ave SE-FS/BZ	7.4	7.9	7.2	7.4	5.5	3.9	5.2	5.8	4.8	4.7	5.6	5.5	5.2	5.0	5.3	5.1	5.1	5.2	5.7	6.4	6.7	5.5	5.3	7.2

Transit Data



Enforcement Data

Citations per Metered Space
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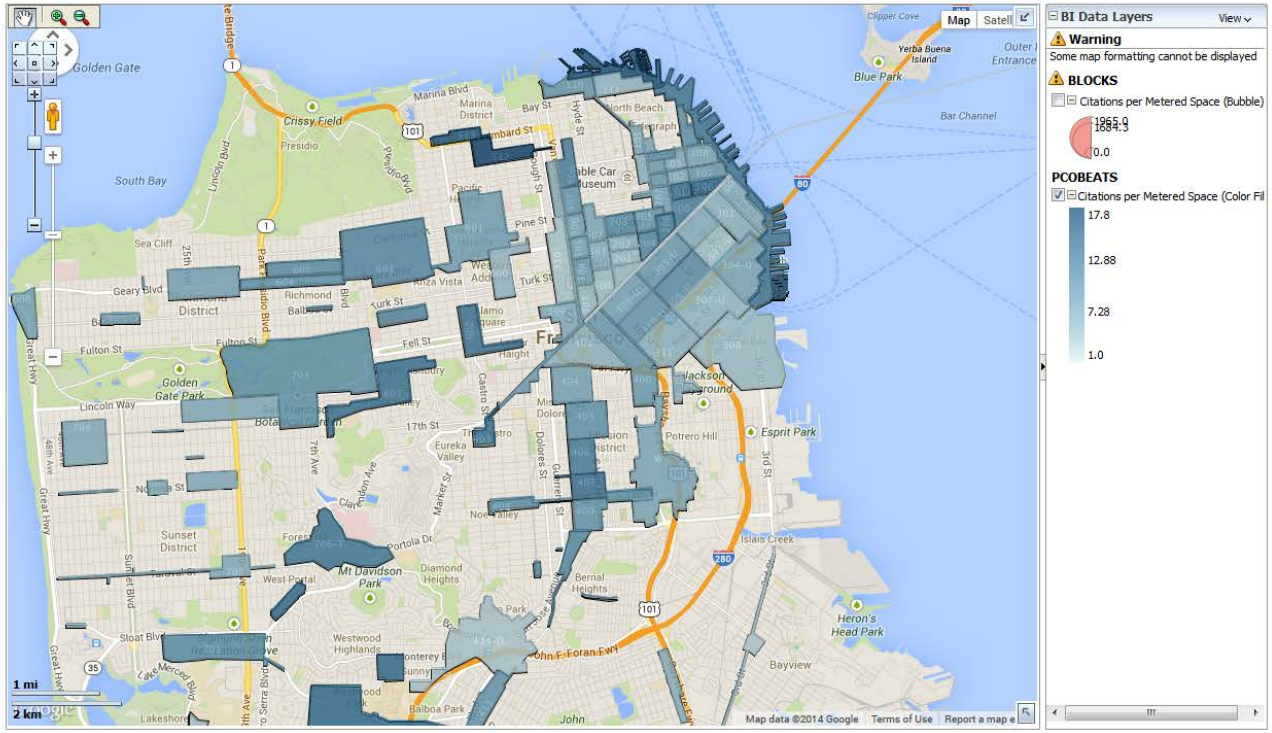
Month Name: January;February;Ma
Parking Management District: --Select Value--
PCO Beat: --Select Value--
Meter Related Citations Only: Y
Violation: --Select Value--
Violation Code: --Select Value--
Apply | Reset

Filters currently applied :

Meter Citation Flag is equal to **Y**
and Calendar Year is equal to **2013**
and Cap Color is equal to **Black, Green, Grey, Red, Yellow**
and Month Name is equal to **January, February, March, April, May, June**



Enforcement Data

Citations per Metered Space

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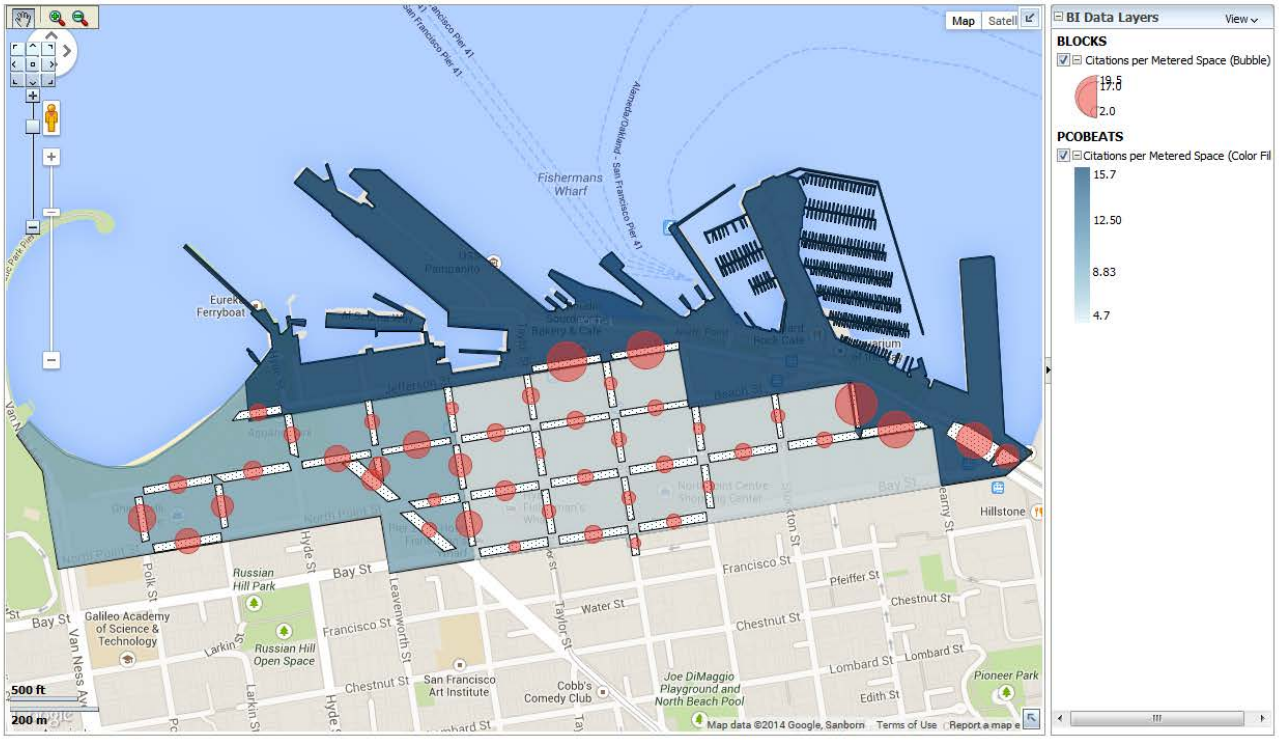
PCO Beat: PORT-1;110;111
Meter Related Citations Only: Y
Violation: --Select Value--
Violation Code: --Select Value--

Apply | Reset

Filters currently applied :

Meter Citation Flag is equal to **Y**
and Calendar Year is equal to **2013**
and PCO Beat is equal to **PORT-1, 110, 111**
and Cap Color is equal to **Black, Green, Grey, Red, Yellow**
and Month Name is equal to **January, February, March, April, May, June**



Lessons Learned

- What worked well
  - Iterative development
  - Transparent, rules-based, and data-driven process
  - Clear metrics associated with policy goals
  - Large investment in map-based user experience

- What was challenging
  - IT investment larger than the agency originally estimated
  - Introducing new technology and new business rules simultaneously is challenging
  - BPE involves culture change

SFMTA Municipal Transportation Agency SFpark

Q&A