Application of San Diego Gas & Electric Company (U902M) for Authority, Among Other Things, to Increase Rates and Charges for Electric and Gas Service Effective on January 1, 2012.	A.10-12-005 (Filed December 15, 2010)
Application of Southern California Gas Company (U904G) for authority to update its gas revenue requirement and base rates effective on January 1, 2012.	A.10-12-006 (Filed December 15, 2010)

Application: A.10-12-006
Exhibit No.: SCG-207

PREPARED REBUTTAL TESTIMONY OF

ED FONG

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

OCTOBER 2011

The Gas Company

TABLE OF CONTENTS

PREPARED REBUTTAL TESTIMONY OF

ED FONG

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

CUSTOMER SERVICES – CUSTOMER SERVICE FIELD OPERATIONS & CUSTOMER CONTACT

I. INTRODUCTION

The following rebuttal testimony regarding Southern California Gas Company's ("SoCalGas'" or "SCG's") Customer Service Field Operations ("CSF") and Customer Contact ("CC") addresses the intervener testimony of:

- Division of Ratepayer Advocates ("DRA"), Exh. DRA-47, Witness Gomberg – September 1, 2011;
- The Utility Reform Network ("TURN"), Exh. TURN Marcus, Witness Marcus – September 22, 2011; and
- Utility Workers Union of America ("UWUA"), Exh. UWUA-2, Witness Frias, Exh. UWUA-4 to Exh. UWUA-8, Witnesses Logan (Exh. UWUA-4), Salas (Exh. UWUA-5), Robles (Exh. UWUA-6), Barber (Exh. UWUA-7) and Carrasco (Exh. UWUA-8).

As shown in the following table, DRA and TURN have made a number of recommendations to deny funding for a variety of SCG costs. Each such recommendation is addressed in detail below. Generally, however, these recommendations lack factual support, are inconsistent with prior positions in past GRCs or related proceedings, are contrary to Commission decisions and policy, and suffer from a single-minded focus on rate reduction, without reasonable consideration of the realities of changing customer needs and increased regulation. UWUA's recommendations focus on reducing response times to customer service requests and emergency orders. UWUA's proposals need to be balanced with the additional expenses required to meet higher requirements for service and safety response.

Due to the relatively short timeframe available to respond to DRA and intervener testimony, each and every proposal by DRA, TURN and UWUA are not addressed in this rebuttal testimony. However, it should not be assumed that failure to address any individual issue implies any agreement by SCG with the DRA or intervener proposal.

Table SCG-EF-1 summarizes the impact of DRA, TURN and UWUA's proposals on TY 2012 estimated expenses for SCG CSF and CC.

Table SCG-EF-1
Comparison of SCG, DRA, TURN and UWUA TY 2012 Estimated Expenses
SCG CSF and CC

Operating & Maintenance Expenses

Description	SCG 2009 Actuals	SCG TY2012 Forecast	DRA Recommended	TURN Recommended	UWUA Recommended [1]
Non-Shared Services					
Customer Service Field [2]	$124,656	$134,558	$131,410	$125,863	$148,658
Customer Contact Center	$40,578	$46,305	$45,504	$41,353	$57,305
Branch Offices	$10,137	$11,135	$10,137	$10,400	$13,635
Meter Reading	$31,657	$32,917	$31,841	$32,917	$32,917
Total Non-Shared Services	$207,028	$224,915	$218,892	$210,533	$252,515
Total Shared Services Incurred Expenses	$5,681	$5,394	$5,394	$5,096	$5,394
Total SCG CSF & CC O&M	**$212,709**	**$230,309**	**$224,286**	**$215,629**	**$257,909**

[1] Assumption is that UWUA proposals are in addition to the TY 2012 SCG forecast;
UWUA estimates the cost of adding CSRs at between $8-11 million ---this table adds $11 million in the CCC

[2] SCG discovered an error in CSF Support when responding to data request TURN-SCG-DR-23 Q.4.h.,
which when corrected, reduced the TY 2012 CSF forecast by $15,000. This correction is reflected in Table SCG-EF-1.

Capital Expenses

Description	SCG Forecast	DRA Recommended
Call Recording Replacement ("NICE")	$788	$788
CSF Operating Efficiency	$266	$266
Forecasting & Scheduling	$2,773	$2,773
CSF Mobile Data Terminals	$915	$0
PACER Refresh	$3,908	$0
Meter Reading Handheld System Replacement	$6,917	$0
Total SCG CSF & CC Capital	**$15,567**	**$3,827**

A. Summary Rebuttal to DRA

My testimony rebuts the following disallowances proposed by DRA:

- CSF average annual drive time increase of 1% (at DRA-47, p.4, lines 4-14) resulting in a reduction of $1,245,000;
- CSF Industrial Service Technicians ("IST") estimated increases because of increased IST order volume and associated increase in CSF supervision resulting in a total reduction of $1,903,000. (at DRA-47, p. 4, line 15 to p. 5, line 17);
- OpEx related on-going or on-going expenses in the CCC, including an OpEx Analyst and related OpEx software/hardware licensing and maintenance agreement expenses resulting in a reduction of $801,000. (at DRA-47, p. 6, lines 4-18);
- Branch Office and Authorized Payment Locations ("APL") expenses primarily related to compliance with the Fair & Accurate Credit Transactions Act ("FACTA") and additional office security provided to customers and SCG employees resulting in a reduction of $998,000. (at DRA-47, p. 6, line 19 to p. 7, line 10);
- Meter reading estimated expenses that have been adopted as operational benefits in SCG's Advanced Metering Infrastructure ("AMI") business case[1] resulting in a reduction of $1,076,000. (at DRA-47, p. 8, lines 1-25); and

[1] D.10-04-027.

- Capital projects: CSF Mobile Data Terminals ($915,000), Meter Reading Handheld System Replacement ($6,917,000) and PACER Mobile Data Terminal Refresh ($3,908,000). (at DRA-47, pp. 9-11).

Overall, DRA's proposals are logically flawed and ignore SCG' prepared direct testimony, associated workpapers and responses to data requests. For example, although DRA accepted SCG's activity level forecast generated from SCG's five-year average forecasting methodology for CSF and CCC order and call volumes, DRA defaulted to the use of SCG's base year 2009 adjusted recorded expenses as their forecast for SCG Branch Offices and APLs. This approach is flawed because it does not account for circumstances that are different than that of base year 2009 which impact CSF and CC activity levels. For example, new environmental regulations (e.g., South Coast Air Quality Management District) impacting customer requests for SCG CSF order volumes have changed since 2009 and were dismissed by DRA.

Another example of DRA's unreasonable approach is its selective view of SCG's OpEx program. That is, DRA silently accepts SCG's OpEx benefits identified in SCG witness Mr. Phillips' testimony (Exh. SCG-13), but does not accept the associated on-going estimated expenses (and therefore incremental expenses) necessary to achieve CSF and CCC OpEx annual benefits of approximately $7.0 million.[2] For example, DRA proposes to disallow approximately $801,000 of on-going expenses (post 2009) for an OpEx analyst and OpEx hardware/software licensing and maintenance, but is willing to accept all of the SCG proposed OpEx CSF and CCC benefits. DRA's proposal is logically flawed and ignores SCG prepared direct testimony, associated workpapers and response to data requests.

[2] Exh. SCG-07-R, p. EF-12, lines 12-19.

B. Summary of Rebuttal to TURN

My rebuttal testimony addresses TURN's proposed disallowances in the following areas:

- TURN's use of 2010 recorded expenses for CSF as a basis for TURN's total CSF TY 2012 estimated expenses resulting in a reduction of $8,695,000[3]. (at TURN Marcus, p. 35 and p. 40);
- TURN's use of 2010 recorded expenses for CSF Operations reductions of $7,580,000 in TY 2012. (at TURN Marcus, pp. 35-38 and p. 40);
- TURN's assertion that SCG's CSF order volume forecast is "complex and undocumented" and that SCG's "five-year average never appears". (at TURN Marcus, p. 36);
- TURN's use of 2010 as a basis for their forecast because in SCG's last GRC (TY 2008), "SoCal forecast a similar jump in the last rate case that never happened". (at TURN Marcus, p. 38);
- TURN's claim that increases in CSF order volumes from SCAQMD rules "were largely offset by lower costs elsewhere". (at TURN Marcus, p. 38);
- TURN's use of 2010 recorded costs for CSF Dispatch, Supervision, and Support (Staff) because in the aggregate there is no upward trend for reductions of $1,115,000[4]. (at TURN Marcus, pp. 39-40);
- TURN's arbitrary $649,000 reduction in CCC estimated expenses because "SoCal's labor costs are 21% above SDG&E's for full-time CSRs and 33% above SDG&E's for part-timers. (at TURN Marcus, p. 40);
- TURN's use of 2009 - 2010 call volumes for its estimates when 2010 includes the impact of OpEx call volume benefits. TURN, in fact, uses a calls per meter forecast methodology resulting in a reduction of $3,398,000. (at TURN Marcus, pp. 44-46);

---

[3] The TURN reduction reflects the correction of ($15,000) to SCG's TY 2012 forecast for CSF Support, as shown in Table SCG-EF-1 of this rebuttal testimony.
[4] Ibid.

- TURN's implication or inference that SCG used "substandard call center performance in 2009-2010" and as assumptions or basis for SCG's CCC estimated expenses for TY 2012. (at TURN Marcus, p. 46);
- TURN's use of a 3.3% abandoned call rate for TURN's forecast of CCC Support expenses resulting in a reduction of $104,000. (at TURN Marcus, pp. 47-48);
- TURN's proposed disallowance of incremental expenses for implementation of Fair and Accurate Credit Transactions (FACTA) red flag rules resulting in a reduction of $219,000. (at TURN Marcus, p. 48); and
- TURN's analysis of miscellaneous revenues for the Residential and Commercial Parts Programs. (at TURN Marcus, p. 55).

Like DRA, TURN's proposals suffer from flawed analysis, inconsistency and mischaracterization of SCG's prepared direct testimony. For example, TURN asserts that SCG uses a "complex and undocumented"[5] forecast methodology. Furthermore, TURN claims that SCG's methodology has "a history of over forecasting field service orders."[6] TURN further concludes that SCG's historic CSF expenses have increased because of wage increases that exceed inflation, not an increase in CSF order volumes.[7] These assertions and conclusions, however, are based on TURN's tactic of cherry picking forecasting methodologies with historical data to support their position of lower levels of TY 2012 CSF orders and customer service representative ("CSR") answered calls for SCG and SDG&E. With that, TURN chooses to use 2010 recorded data as a basis for forecasting the entire CSF account (CSF Orders, CSF

[5] Exh. TURN Marcus, p. 36.
[6] Ibid.
[7] Ibid., p. 37.

Supervision, CSF Dispatch and CSF Staff). Furthermore, TURN includes no factor for customer growth (meter growth is included in SCG's TY 2012 estimated expenses).[8]

TURN's witness Mr. Marcus takes the exact opposite approach when addressing San Diego Gas & Electric's ("SDG&E's") CSF estimated expenses via his Utility Consumer Action Network ("UCAN") testimony. Specifically, UCAN's witness Mr. Marcus does select specific CSF order types for estimated expense reductions (seasonal turn-on and season turn-offs for single family residences) in reducing SDG&E estimated expenses.[9] More important the same Mr. Marcus spends a considerable portion of his SDG&E testimony applying different average methods, including six-year average, three-year average and two-year average forecasting methods at the specific workgroup and labor and non-labor expense levels. Mr. Marcus does include meter growth in CSF and CCC forecast for SDG&E (albeit at a lower growth rate than SDG&E's forecast). Similarly, Mr. Marcus changes direction when forecasting SCG's CCC call volume forecast. For the SCG's CCC CSR answered call volume, Mr. Marcus chooses a two-year 2009-2010 average method, but for the CSF order volume forecast he chooses the 2010 recorded as his forecast.

In summary, Mr. Marcus is inconsistent, selective and arbitrary in his use of different forecasting methods for TY 2012 estimated expenses for SCG and SDG&E's CSF and CC activities. Table SCG-EF-2 consolidates and summarizes Mr. Marcus' TURN and UCAN proposed disallowances and application of different forecast methods over very similar, if not, identical CSF and CC functions within SCG and SDG&E.

---

[8] Ibid, pp. 37-38.
[9] Exh. UCAN-2, Marcus, pp. 67-68.

Table SCG-EF-2
Comparison of TURN and UCAN Forecasting Methodologies for CSF and CC

Workpaper Workgroup or USS Cost Center	TURN / SCG	UCAN / SDG&E
CS Field Operations	2010 recorded expense without escalation & growth	1) 1% reduction across the board on all other orders in SDG&E's order forecast except - 2) Seasonal turn-on for single family dwelling orders set to decline at the same rate of decline in 2008-2010, and 3) Seasonal turn-off orders set at 2010 recorded levels 4) Non-labor uses a 6 year average from 2005-2010 as a % of total labor
CS Field Dispatch	2010 recorded expense without escalation & growth	5 year average of 2005-2009 reduced by 10%
CS Field Supervision	2010 recorded expense without escalation & growth	2 year average of 2009-2010 minus SDG&E's forecasted 2010-2012 incremental reduction
CS Field Support Staff	2010 recorded expense without escalation & growth	5 year average of 2005-2009 reduced by 10%
CCC Operations	Labor -"judgementally" uses 1.35 calls per meter TURN computes: > 2005-09 calls per meter of 1.4223 > 2006-10 calls per meter (adjusting 2009) of 1.3915 > 2009-10 average calls per meter of 1.3200 Non-labor - 6 year 2005-2010 percent of non-labor to labor costs applied to labor	Labor - 2 year average of 2009-2010 (UCAN adj'd 2009) cost per CSR call with no growth in CSR calls Non-labor - 5 year average of 2006-2010
CCC Support	Accepted SCG's 5 year average of expense forecast; adjusted telecommunications expense due to lower call volume forecast	Accepted SDG&E's 5 year average of 2005-2009 expense forecast; adjusted telecommunications expense due to lower call volume forecast and lower rate per call based on 3 year average of 2008-2010
Branch Office & APLs	2010 recorded expense	2 year average of 2009-2010
2200-0345 CSF Training Manager	5 year average of 2006-2010 expense	n/a
2200-0942 CSF Staff Manager	5 year average of 2005-2009 expense	n/a
Residential & Commercial Parts Miscellaneous Revenues	2 year average of dollars per customer multiplied by TURN's 2012 active meter forecast	n/a

C. Summary of Rebuttal to UWUA

UWUA proposes the following service enhancements for customers:

- Achieve 100% response to A1 leak orders within the 30 and 45 minute windows (30 minutes during business hours [Monday-Saturday 7 AM to 5 PM excluding holidays] and 45 minutes during non-business hours). (at Exh. UWUA-6, Robles, p. 2, lines 18-20 and Exh. UWUA-4, Logan, p. 7, line to p. 8, line 17);
- Achieve an average two-day order completion schedule (OCS) for all customer orders. (at Exh. UWUA-7, Barber, p. 2, line 25 to p. 3 line 6);

- Conduct checks of all gas appliances for "brass" connectors and offer replacement of these connectors when a qualified SCG employee is at a customer's premises. (at Exh. UWUA-8, Carrasco, p. 7, lines 1-11);
- Increasing the CCC level of service (LOS) to where 90% of CCC in-bound calls are answered within 60 seconds at an average handle time ("AHT") of 270 seconds. (at Exh. UWUA-5, Salas, p. 2, lines 18-26 and p. 14 line 21to p. 15 line 6); and
- Staff all branch offices with a higher job classification of Customer Contact Representatives ("CCR"). (at Exh. UWUA-2, witness Mr. Frias, p. 8, lines 26-27 and p. 9, lines 3-12 and Exh. UWUA-4, witness Ms. Logan p. 9, lines 12-16).

My rebuttal testimony will address these proposals. Specifically, I will address the estimated CSF and CC workforce requirements and related expenses that would result from implementing UWUA's proposals. I will also clarify several SCG CSF policy, procedure and practice issues raised by UWUA, including CSF time standards for orders and classification of leak orders. With respect to UWUA's recommendation regarding adoption of specific safety programs for SCG, SCG rebuttal witness Mr. Mark L. Serrano addresses UWUA's proposed safety programs contained in the testimony of UWUA witnesses Messrs. Devlin and Frias (Exhs. UWUA-3 and UWUA-2, respectively).

Before getting to the details, SCG would like to note its appreciation for UWUA's insight and its continuing emphasis on providing safe, comprehensive, and high level of service to SCG's customers. DRA and TURN are essentially silent as to how their proposed disallowances will impact SCG's level of service and safety. DRA and TURN do not provide analysis or address the impacts of their proposed reductions on emergency order response times, customer order completion schedules or CCC level of service. SCG's estimated expenses for TY 2012 are consistent with resources needed to maintain the current level of customer service and emergency order response.

My rebuttal testimony is organized as follows:

- Section II – DRA and TURN CSF Proposed Disallowances
- Section III – DRA and TURN Customer Contact Center ("CCC") Proposed Disallowances
- Section IV – DRA and TURN Branch Office and APL Proposed Disallowances
- Section V – DRA Meter Reading Proposed Disallowances
- Section VI – Miscellaneous Revenues
- Section VII – DRA Capital Projects Proposed Disallowances
- Section VIII – UWUA Proposals
- Section IX – Summary and Conclusion; and
- Attachments A – INRIX National Traffic Scorecard-2010 Annual Report, March 2011
- Attachment B – TURN Data Request, TURN-SCG-DR-23, Question 2
- Attachment C – TURN Data Request, TURN-SCG-DR-23, Questions 10.e. and 10.f.
- Attachment D – TURN Data Request, TURN-SCG-DR-30, Question 4
- Attachment E – Exhibit SCG-07-WP-R, p. 102, CSR Forecast
- Attachment F – J. D. Power and Associates 2011 Gas Utility Residential Customer Satisfaction Study, Excerpt

II. CUSTOMER SERVICES FIELD ("CSF")

Table SCG-EF-3 summarizes SCG, DRA, TURN and UWUA's recommended TY 2012 estimated expenses for CSF.

Table SCG-EF-3
Comparison of SCG, DRA, TURN and UWUA TY 2012 Estimated Expenses

Description	SCG 2009 Actuals	SCG TY2012 Forecast	DRA Recommended	TURN Recommended	UWUA Recommended
Customer Service Field					
CSF Operations	$99,099	$107,484	$104,486	$99,904	$121,584
CSF Dispatch	$8,328	$8,319	$8,319	$8,193	$8,319
CSF Supervision	$10,418	$11,574	$11,424	$10,651	$11,574
CSF Support [1]	$6,811	$7,181	$7,181	$7,115	$7,181
Total CSF Non-Shared Services	$124,656	$134,558	$131,410	$125,863	$148,658
Total CSF Shared Services Incurred Expenses	$4,329	$4,431	$4,431	$4,133	$4,431
Total SCG Customer Service Field	**$128,985**	**$138,989**	**$135,841**	**$129,996**	**$153,089**

[1] SCG discovered an error in CSF Support when responding to data request TURN-SCG-DR-23 Q.4.h., which reduced the TY 2012 forecast by $15,000.

DRA has recommended that SCG's incremental request of $10,004,000 (labor and non-labor combined) be reduced by $3,148,000. TURN overlaps with DRA's recommendation and proposes that SCG's incremental request be reduced by $8,993,000 overall.[10] DRA did not dispute SCG's five-year average forecasting methodology, customer growth and forecast for planned meter change-outs, but DRA disallowed all incremental estimated expenses related to assumed increases in average drive time, industrial service technician activities and associated supervisory resources.

While preparing the response to data request TURN-SCG-DR-23, Question 4, an error was identified where a 2005 one-time non-labor expense that should have been adjusted and

[10] The TURN reduction reflects a correction of ($15,000) to SCG's TY 2012 forecast for CSF Support, as shown in Table SCG-EF-1 of this rebuttal testimony.

removed from historical expenses, was not. The correction of this error results in a reduction of $15,000 in the CSF Support TY 2012 forecast. This change has been reflected above in Table SCG-EF-1 and Table SCG-EF-3.

A. Rebuttal to DRA- CSF

1. CSF Drive Time

DRA states the following:

> "SCG does not provide justification for its forecast increase other than noting that its proposed increase is less than DRA's proposed increase in a prior GRC…."
>
> "DRA has not located and SCG did not provide any credible current evidence that suggests drive times in SCG's service territory are increasing. In fact, California's high unemployment rate and lower customer growth suggests that fewer vehicle trips are occurring. Hence, DRA recommends that no additional expenses for drive time be allowed."[11]

a. Traffic congestion in the Southern California area is, in fact, increasing.

DRA states in their testimony (Exh. DRA-47, p. 4) that Southern California will experience "lower customer growth". DRA is effectively stating that Southern California will continue to grow, albeit, at a slower rate.

To reaffirm DRA's conclusion in SCG's AMI proceeding, A.08-09-023 regarding drive time (see discussion in Section II.B.1.b), INRIX National Traffic Scorecard - 2010 Annual Report stated the following regarding Los Angeles area freeways:

> "But…all regions take a back seat to Los Angeles, by any measure. Even though congestion is over 20% lower than the peak year of 2007 in the L.A. area, it is still worse than cities such as Paris, London and Brussels. Congratulations Los Angeles—even when adding

[11] Exh. DRA-47, p.4, lines 5-14.

most of Western Europe, those of you that use the freeways to get around town—you still take the cake!"[12]

Even more compelling, the INRIX National Traffic Scorecard shows that 7 of the 25 most congested corridors are located in SCG's service territory. The INRIX study identified the seven Southern California congested corridors as: Riverside Freeway 91, San Diego Freeway 405 (Imperial Highway to Getty Center Dr.), Santa Monica Freeway 10, Santa Ana/Golden State Freeway 5, San Bernardino Freeway 10, San Diego Freeway 405 (Nordoff to Mulholland Dr.), and Pomona Freeway 60.[13] INRIX says "The Nation's Travel Time Tax, a key indicator of traffic congestion, was 9.7% in 2010, up 11% from 2009, but still 27% off the 2007 peak.[14] (See Attachment A.)

Table SCG-EF-4 summarizes the increase in SCG service territory traffic congestion per the INRIX study.

Table SCG-EF-4
Traffic Congestion in Major SCG Metropolitan Areas

National Congestion Rank	Metropolitan Area	2009 to 2010 Absolute Change	2009 to 2010 Percent Change	2010	2009	2008	2007	2006
1	Los Angeles	1%	3%	35%	34%	32%	45%	44%
17	Riverside	2%	22%	11%	9%	8%	20%	20%
55	Oxnard	4%	50%	12%	8%	9%	18%	14%
77	Bakersfield	1%	100%	2%	1%	1%	3%	2%
	National	1%	11%	10%	9%	9%	13%	11%

* Travel Time Tax is the percentage of extra travel time (vs. "free flow") a random trip takes in the specific region and time period analyzed. A 10% tax time means 10% additional trip time due to congestion.

[12] INRIX National Traffic Scorecard-2010 Annual Report, March 2011, p. ES-10 located at http://inrix.com/scorecard/
[13] Ibid., p. ES-1.
[14] Ibid., p. ES-7, Table ES-5, "Top 25 Most Congested Corridors, 2010".

In addition, the 2005-09 drive time data provided in response to TURN data request, TURN-SCG-DR-23, Question 3, and 2010 data shows that average drive time for SCG CSF orders has increased approximately 6.7 percent over base year 2009 levels. See Table SCG-EF-5. Congestion was clearly reduced during the 2008-09 economic recession, but evidence indicates that average drive time for SCG CSF orders has increased from the 2009 levels. Prior to the 2008-09 economic recession, average drive time had steadily increased.

Table SCG-EF-5
SCG Average Drive Time
(Minutes)

Year	Average Drive Time
2005	9.7
2006	10.8
2007	11.1
2008	10.5
2009	10.4
2010	11.1

b. As recently as 2009, DRA proposed a higher average drive time in SCG's Advanced Meter Infrastructure proceeding.

DRA is incorrect by stating that DRA had proposed a higher average drive time in a prior GRC. Rather, DRA proposed a higher drive time, a 2.5% annual increase, as recently as 2009 in SCG's AMI proceeding. DRA's current approach would assume no increase in average drive time in CSF orders. DRA's position is a direct contradiction or conflict with DRA's position taken in SCG's AMI Application, A.08-09-023.

As stated in my prepared direct testimony, DRA proposed an annual increase of 2.5% in average drive time in SCG's AMI Application.[15] DRA stated the following in A.08-09-023:

> "Since traffic can change dramatically and tends to increase over time, a projection of annual drive time increase of ***less than 1 percent has the potential to seriously underestimate actual drive times.*** DRA therefore suggests increasing the congestion forecast from annual increase in drive time of 6 seconds (which is slightly less than 1%) to an annual increase of 2.5%." [16] (emphasis added)

Contrary to its 2009 position, DRA's current approach in this GRC would assume no increase in average drive time in CSF orders. SCG considered, but did not adopt, DRA's much higher 2009 proposed increase in average drive time of 2.5%. Rather, in proposing an annual increase of 1% in average drive time between CSF orders, SCG is attempting to be more consistent across Commission proceedings and true to the customer growth and drive time trends noted above. DRA's approach, on the other hand, appears to be completely focused on reducing expenses, without consideration of customer growth and drive time facts. DRA's "about face" (supporting a 2.5% increase one year and absolutely no increase in another year) is demonstrative of its myopic and unreasonable approach in this GRC.

In sum, the 1% increase in average drive time proposed by SCG is reasonable. DRA does not provide any information in its own testimony supporting its assumption for no change in drive time and is not consistent with its earlier testimony. In contrast, SCG's forecast is corroborated by the facts noted above. Accordingly, DRA's proposed disallowance of $1,245,000 related to drive time should be rejected by the Commission.

---

[15] Exh. SCG-07-R, p. EF-20, line 11 to p.EF-21, line 21.

[16] Southern California Gas Company Advanced Metering Infrastructure, A.08-09-023, Division of Ratepayer Advocates Report, April 23, 2009, Chapter 4, p. 4-10, lines 9-14 (DRA witness Irwin).

2. **Industrial Service Activities**

DRA states the following:

> "SCG's willingness to subsidize large customers' air quality compliance costs in rates from other customer classes is not justified. If SCG were not providing these customers with service they would have to pay for it or face fines from SCAQMD. Moreover, in the water industry, no such subsidies to large customers that discharge to sewers exist. Just as those large water customers must secure discharge permits at their own expense, SCG's large customers should achieve SCAQMD compliance from their own fund. Rather than treating its Industrial Service Technicians' time as a ratepayer expense, SCG could propose charging fees to cover their costs. Therefore, DRA recommends disallowing SCG's proposed increase and maintaining its 2009 expense level." [17]

a. DRA's understanding of SCG's CSF services for commercial and industrial ("C&I") customers is incorrect, and therefore, DRA is incorrect when it concludes that SCG's large customers are being subsidized.

First, SCG C&I customers are availing themselves of similar services that are available and used by residential customers. In addition, the overwhelming majority of the service orders for CSF are completed and conducted for residential customers. In other words, since CSF costs are paid for by all customers and are embedded in a cents per therm rate, the more likely conclusion is that SCG C&I customers are no more subsidized than residential on-premise CSF services.[18]

Residential customers can, and do, schedule home gas appliance and equipment inspections and tune-ups with SCG. Industrial Service Technicians ("ISTs") provide similar services to industrial customers. Industrial gas equipment is more complex and sophisticated than a typical residential appliance or equipment. Nevertheless, ISTs inspect and determine whether the industrial gas equipment (e.g., boiler) is working properly, safely and efficiently. These commercial and industrial services have been provided to C&I customers for decades.

---

[17] Exh. DRA-47, p. 4, line 22 to p. 5, line 6.

[18] SCG 2010 non-C&I orders were 4,084,347 and C&I orders were 136,607. Technically, non-users of SCG CSF services are subsidizing users of SCG CSF services.

Hence, C&I customers are no more subsidized than residential customers when gas equipment is inspected and tuned by SCG CSF personnel.[19] Table SCG-EF-6 shows the similarities of the services provided (activities performed) by SCG residential, commercial and industrial field technicians.

//

//

//

[19] Note that gas equipment can be designated by SCG personnel as inoperative. In those cases, SCG will shut-off the gas equipment (applies to all residential, commercial or industrial gas equipment).

Table SCG-EF-6
Services Provided by Residential, Commercial & Industrial Service Technicians

Classification	Services Provided
Energy Technician Residential	• Responsible for servicing **residential and small commercial appliances or equipment** • Performs routine diagnosis and repairs of residential and small commercial appliances, including adjustments, pressure regulation, parts replacement and carbon monoxide (CO) testing • Performs appliance safety checks; leaves appliance off if in unsafe condition • Performs Turn-On, Close and High Bill Investigation orders • Responds to and tests for leakage in underground piping, houseline, and appliances at customers' premises • Responds to emergency incidents and initiates appropriate action • Works on company owned equipment (gas meter)
Commercial Service Technician	• Responsible for servicing **commercial and food industry appliances or equipment** • Performs routine diagnosis and repair of commercial, food industry and gas-fired and related electrical appliances and equipment, including adjustments, pressure regulation, parts replacement, and carbon monoxide (CO) testing • Performs appliance or equipment safety checks; leaves appliance or equipment off if in unsafe condition • Performs Turn-On, Close and High Bill Investigation orders • Responds to and tests for leakage in underground piping, houseline, and appliances at customers' premises • Responds to emergency incidents and initiates appropriate action • Works on company owned equipment (gas meter)
Industrial Service Technician	• Responsible for servicing **industrial equipment** • Performs routine diagnosis and repair of highly complex gas-fired and related electrical equipment, such as gas absorption chillers, infra-red , induction melting, large steam systems, Including technical inspections, adjustments and parts replacements to complex energy systems • Performs flue gas analyses, non-certified NOx testing, and carbon monoxide (CO) testing for customers as needed • Performs equipment safety checks; leaves equipment off if in unsafe condition • Performs Turn-On, Close and High Bill Investigation orders • Responds to and tests for leakage in underground piping, houseline, and appliances at customers' premises • Responds to emergency incidents and initiates appropriate action • Works on company owned equipment (gas meter)

b. SCG is not responsible for monitoring and assessing compliance of equipment with Southern California Air Quality Management District ("SCAQMD") emission rules and standards.

SCG is not responsible for monitoring and assessing compliance of gas equipment with SCAQMD emission rules and standards. However, since SCAQMD's new emission rules and standards were established and enforced, SCG has experienced an increase in industrial service requests requiring inspection, assessment, tune-up and maintenance of gas engines, boilers and other C&I equipment. SCG is not permitting or certifying that a customer's industrial equipment is SCAQMD compliant. The customer continues to assume full responsibility for obtaining SCAQMD compliance certification and proper equipment permits.

Table SCG-EF-7 shows the increase in IST flue gas analyses ("FGA") performed in the relevant SCAQMD areas for April 2010 when SCG began tracking FGAs, through July 2011. An increase in the number of FGAs in SCAQMD jurisdictional areas is obvious when compared with non-SCAQMD areas. FGAs performed in SCAQMD territory have increased at essentially twice the rate as those performed in non-SCAQMD territory.

Table SCG-EF-7
Flue Gas Analyses

	April - December 2010		January - July 2011		2011 to 2010
	FGAs	FGAs Per Day	FGAs	FGAs Per Day	% Change
SCAQMD Territory	1,807	9.4	2,764	18.9	101%
Non-SCAQMD Territory	229	1.2	268	1.8	54%

Table SCG-EF-8 shows a breakdown of Industrial Service Orders ("ISOs") within and outside of the SCAQMD jurisdiction. Similar to the FGAs above, ISOs completed in the SCAQMD territory have increased by more than 50% in 2010 over 2007.

Table SCG-EF-8
Industrial Service Orders

Year *	ISOs in SCAQMD Territory	ISOs in Non-SCAQMD Territory **
2007	10,579	3,316
2008	12,036	2,018
2009	13,958	2,000
2010	16,119	2,360
YTD July 2011	10,097	1,228

* Prior to 2007, ISO's were not tallied electronically
** For orders where air quality district territory is unknown, the order is counted in non-SCAQMD territory

In sum, the evidence is clear that C&I customers are no more subsidized than residential customers as SCG ISTs essentially perform the same services on industrial gas equipment as CSF Energy Technicians Residential ("ETRs") perform on residential equipment. Moreover, activity levels for ISTs within SCAQMD's jurisdictional territory have increased in a significant manner with the implementation of SCAQMD's emission rules.

Under these circumstances, it is not equitable to deny one customer group an existing service just because of circumstances that have increased demand, unless that approach is applied to all groups. DRA's recommendation to not fund the needed activity levels is clearly biased. DRA is effectively recommending that current IST equipment inspection, tune-up and maintenance services be eliminated in SCG's bundled services and that "SCG could propose charging fees to cover their costs."[20] DRA provides no details on how SCG would be able to serve industrial customers after eliminating these basic inspection and tune-up services or if SCG must differentiate customer requests for normal equipment inspection and tune-up from those

[20] Exh. DRA-47, p. 5, lines 2-5.

caused by new SCAQMD rules. Therefore, for these reasons, DRA's proposed disallowance of $1,903,000 for SCG's request for incremental ISTs should be rejected.

B. Rebuttal to TURN- CSF

TURN proposes the following for CSF estimated expenses:

> "The area where TURN's recommendations overlap with DRA's position is in customer field services, where we used a global, top-down estimating method for all costs, while DRA made specific reductions to incremental expenses that are subsumed within our recommendation."[21]

> "TURN recommends a total of $125.8 million based on 2010 recorded data with no further increases. This is $1.1 million above 2009 recorded levels, but $8.8 million below SoCal and $5.7 million less than DRA."[22]

TURN asserts the following in an attempt to justify their proposal of using 2010 recorded expenditures as their proposed TY 2012 CSF Operations estimated expenses:

> "SoCal uses a complex and undocumented forecast methodology. It is ostensibly based on a five year average of orders increased by customer growth (with the exception of specific accounts) multiplied by a fiveyear average of on-premises time, plus increasing drive time, plus a five year average of training costs. But when one actually looks at the orders on SoCal's workpaper spreadsheets, the five year average never appears."[23]

> "And, while SoCal's method is complex, SoCal has a history of overforecasting field service orders, as shown in Figure 3…."[24]

//

//

//

---

[21] Exh. TURN Marcus, p. 34.
[22] Ibid., p. 35.
[23] Ibid., p. 36.
[24] Ibid., p. 36.

SCG Doc#260049

1. SCG's Five-year Average Forecast Methodology

a. SCG has extensively documented its five-year average forecast methodology in prepared direct testimony, associated workpapers and responses to data requests.

SCG provided prepared direct testimony describing the five-year average methodology for forecasting CSF and CCC transactions. (at SCG-07-R, pp. EF-6 to EF-8). In addition, the specific "CSF Workload Forecasting Methodology" using the five-year historical average, customer growth, average drive time and productivity is described at the "order type" detail in prepared direct testimony. (at SCG-07-R, pp. EF-15 to 22). Workpapers, Exh. SCG-07-WP-R, Customer Services Field, 2FO000.000_Supp1.pdf, pp. 26-31, provided the total orders, hours and full-time equivalents ("FTEs") forecast resulting from calculations using the five-year average, customer growth, on-premise time and off-premise time (non-job time and drive time). SCG also provided an Excel file in response to the above referenced workpapers to TURN data request, TURN-SCG-DR-23, Question 2, on August 12, 2011. (See Attachment B.) All of this data sufficiently supports SCG's request. If TURN wanted to see additional data, including specific formula calculations for the five-year average order forecast, SCG would have provided the Excel file. However, TURN did not make such a request.

b. SCG's TY 2012 CSF order volume forecast represents the "average" year.

SCG's TY 2012 CSF order volume forecast represents average conditions. Table SCG-EF-9 and Chart SCG-EF-2 show that total CSF orders per meter and total CSF orders fluctuate from year-to-year. SCG has used the five-year average methodology to smooth the cyclical variations to present the "average" year under normal conditions.

Clearly, TURN has distorted the issue of SCG's TY 2008 GRC forecast being much greater than the actual 2008 CSF order volumes. The initial meter growth forecast for TY 2008 was developed in early 2006 so that SCG's GRC Notice of Intent could be filed in August 2006. In early 2006, national and regional economic conditions were such that forecasted economic growth in 2007 and 2008 was still robust. Actual economic growth, and therefore actual SCG meter growth, was lower than TY 2008 GRC forecast levels.

That being said, TURN fails to point out that SCG's TY 2012 CSF total order volume forecast is 4,423,842 orders,[25] which is actually less than SCG's TY 2008 forecast of 4,528, 969.[26] In other words, SCG's (and similarly SDG&E's) five-year average forecasting methodology is forecasting significantly lower total order volumes than were forecast in the 2008 GRC, even with economic growth (albeit much slower growth rates).

TURN has distorted the historical and TY 2008 GRC differences in Exh. TURN Marcus Figure 3 by their choice of the scale units and the minimum value for the vertical axis. (at TURN Marcus, p. 36). If one chose a scale on the vertical axis starting from the origin (zero), then the supposed steep increase and differences between SCG's TY 2008 CSF order forecast and actual order volumes depicted in TURN Figure 3 would appear to be far different.

//

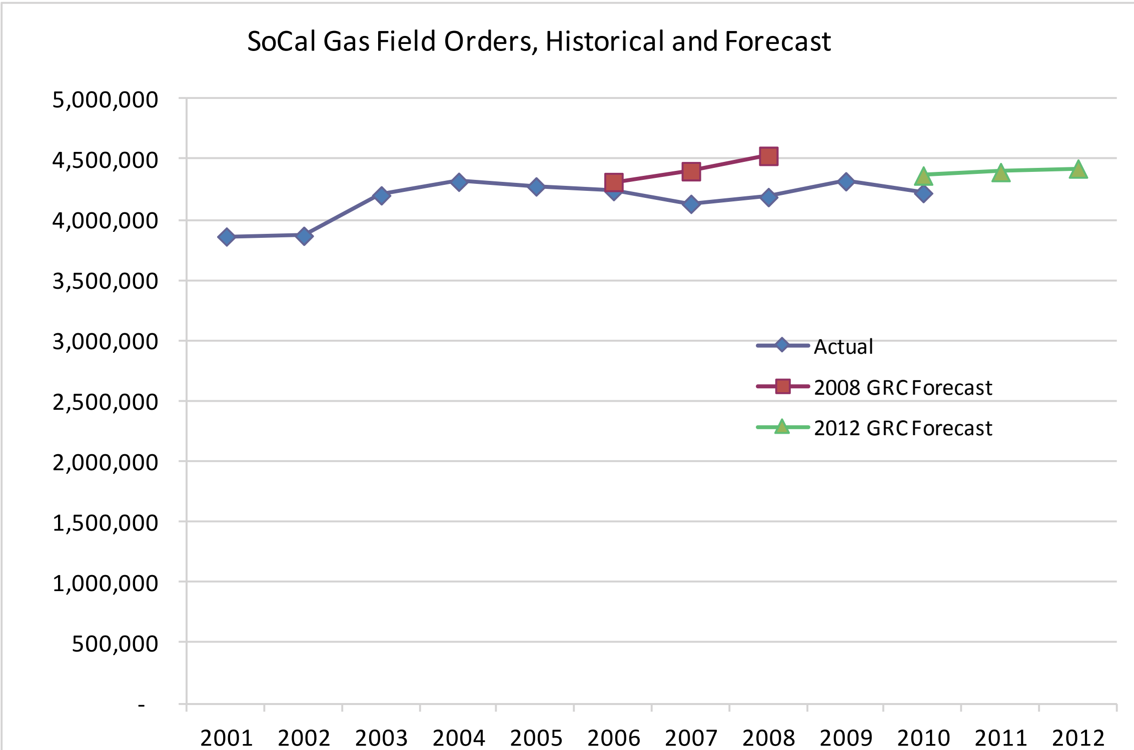
//

//

---

[25] Exh. SCG-07-R, p. EF-20, Table SCG-EF-8.
[26] A.06-12-010, SCG 2008 GRC Application, Exh. SCG-7-E, p. JPP-23, Table SCG-NSS-JPP-8.

Chart SCG-EF-1
SCG CSF Orders: Historical and Forecast



c. SCG has been consistent in its application of the five-year average methodology.

As stated in my prepared direct testimony:

"In almost all cases where specific historical transactions data (e.g., call volume, field orders, etc.) were available and were comparable for a five-year period (2005-09), SCG calculated the five-year average transactions and then applied the assumed annual meter growth forecast to estimate 2010-12 expenses for transactions based on CSF and CC cost center workgroups."

"Specifically, for most CSF and CCC operational estimated expenses, the five-year average on a transactions per meter basis is calculated. The estimated or forecasted 2010-12 transaction volume (e.g., for specific field order volumes and call volumes) is the product of the five-year average of transactions per meter and the number of forecasted meters for 2010-12."[27]

In fact for SCG, 54 separate CSF order types were forecasted. Of those 54 CSF order types, only 7 order types deviated from the five-year historical average methodology.[28] Table SCG-EF-8 of my prepared direct testimony (Exh. SCG-EF-07-R) shows the five-year historical order volume by major order groups.[29]

Table SCG-EF-9 below shows the 10 year history (2001-2010) for the aggregate total of CSF orders along with the active meters (customers). "Total orders per meter" vary each year, but the 10-year (2001-10), five-year (2005-09) and three-year (2007-09) averages showed a minor variation between 0.77 to 0.78.

Table SCG-EF-9
2001-2010 Customer Service Field Orders Per Active Meter

Year	Orders	Active Meters	Orders / Meter
2001	3,862,162	5,069,718	0.762
2002	3,868,250	5,137,054	0.753
2003	4,202,547	5,198,173	0.808
2004	4,314,462	5,266,235	0.819
2005	4,276,085	5,328,430	0.803
2006	4,237,698	5,391,974	0.786
2007	4,132,128	5,445,791	0.759
2008	4,188,647	5,466,979	0.766
2009	4,318,794	5,480,314	0.788
2010	4,220,954	5,516,872	0.765
Average 2001-10 Orders	4,162,173	Average 2001-10 Orders / Meter	0.781
Average 2005-09 Orders	4,230,670	Average 2005-09 Orders / Meter	0.780
Average 2007-09 Orders	4,213,190	Average 2007-09 Orders / Meter	0.771

[27] Exh. SCG-07-R, "Revised Prepared Direct Testimony of Ed Fong, Southern California Gas Company", p. EF-6, line 14 to p.EF-7, line 6.
[28] Ibid., p. EF-15, line 22 to p. EF-16, line 18.
[29] Ibid., Table SCG-EF-8, p. EF-20. An order group is an aggregate of related order types.

d. Several CSF order types have cyclical drivers (e.g., regional economic activity, housing starts, population in and out migration, etc.) that determine the variation of CSF order volumes from year-to-year.

Several order types are driven by regional economic activity, including housing starts, resident turnover, unemployment, and disposable income. Activity levels for order groups in Exh. SCG-07-R, Table SCG-EF-8 that have large economic exogenous cyclical components are:

- Change of Account
- Credit/Collections
- Fumigation
- High Bill Investigation ("HBI")
- Meter Work (Capital)
- Non-pay Turn-on
- Turn-on/Shut-off
- Food Industry
- Commercial/Industrial

e. Total CSF orders also show the cyclical swings.

CSF order volumes clearly show a cyclical (up and down) pattern over a ten year period (2001-2010). See Chart SCG-EF-2 below.

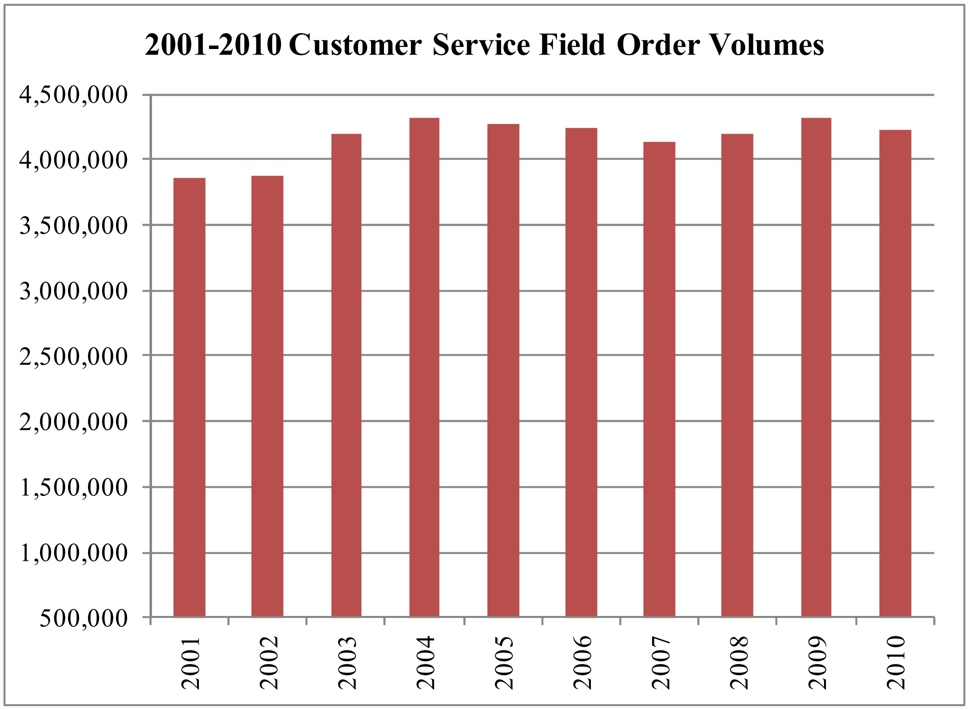
//

//

//

Chart SCG-EF-2

Annual Customer Service Field Order Volumes



Because of the cyclical movements in CSF orders, SCG's forecast for CSF order volume has applied a consistent five-year average methodology over most of the order types.

During economic down turns, the five-year average methodology will typically over forecast order types that are cyclical. However, TY 2012 CSF activity level forecasts should represent the "average" or normal year. Orders increase and decrease year-to-year (from 2005-2009). Because of the continuing economic downturn, cyclical order types typically declined in 2010 over 2009 levels. (See Table SCG-EF-10.) For example, Change of Account orders showed a decline of approximately 53,000 orders in 2010 from 2009 levels, but are still at higher levels than 2005-2008. Similarly, fumigation orders in 2010 (termite control) declined significantly from the peak of home sales (existing and new homes) in 2005-2006. Meter work also declined. The decline in credit and collections in 2009-2010 is distorted by the temporary credit moratorium resulting from the Service Disconnection OIR, R.10-02-05. Total CSF orders declined in 2010 relative to 2009, but were still greater than 2007 and 2008 levels.

Table SCG-EF-10
2005-2010 Customer Service Field Orders
Year-to-Year Comparison

Order Group	2005	2006	2007	2008	2009	2010
Change of Account	**1,414,854**	**1,351,035**	**1,305,327**	**1,421,703**	**1,607,321**	**1,554,142**
Credit/Collections	**440,873**	**433,149**	**472,519**	**482,383**	**394,467**	**386,435**
CSO	521,693	519,842	496,958	450,686	440,318	428,450
Gas Leak	338,058	341,354	316,383	294,270	302,883	317,064
Fumigation	**204,755**	**174,175**	**130,615**	**117,248**	**116,112**	**122,768**
HBI	**23,111**	**18,711**	**19,667**	**25,434**	**12,178**	**17,887**
Meter Work (Capital)	**76,413**	**80,150**	**59,351**	**41,443**	**28,193**	**21,515**
Meter Work (O&M)	206,758	198,263	169,647	167,363	169,273	171,017
Nonpay Turn-on	**117,657**	**128,068**	**134,333**	**142,990**	**110,172**	**106,584**
Read / Verify	160,749	188,536	189,638	193,106	207,311	201,840
Turn-on / Shut-off	**281,455**	**288,537**	**300,074**	**333,002**	**363,355**	**345,012**
Miscellaneous	62,446	67,944	91,425	85,003	110,593	86,978
Other	7	31	4	4	3	12
Food Industry	**78,632**	**74,804**	**70,779**	**69,190**	**67,733**	**65,742**
Commercial / Industrial	**65,213**	**64,136**	**67,692**	**64,041**	**64,900**	**70,865**
Incomplete Orders	283,411	308,963	307,716	300,781	323,982	324,643
Total	4,276,085	4,237,698	4,132,128	4,188,647	4,318,794	4,220,954

2. CSF Productivity

SCG used the most recent 2009 "on-premise" times to capture the latest productivity gains and did not use a five-year average for order "on-premise" time to lower productivity standards.

SCG incorporated the 2009 base year productivity levels for CSF order times as shown in Table SCG-EF-9 of my prepared direct testimony.[30] SCG incorporated efficiency gains in CSF as 2009 is the highest productivity factor within the 2005-09 period. Specifically, 2009 CSF average on-premise times show an 8% productivity gain over 2007.[31]

---

[30] Ibid., p. EF-22, lines 6-8.
[31] Ibid., p. EF-21, line 22 to p. EF-23, line 8.

Furthermore, SCG used a conservative forecast for an increase in average drive time per order of only 1% per year starting with 2009 actual average drive time.[32] SCG responds to DRA's request to disallow the 1% increase drive time per year in Rebuttal to DRA above, Section II.A.1.

3. Industrial Service Technicians

a. The undeniable increase in Industrial Service Technician ("IST") order volume because of new SCAQMD rules cannot be offset by lower costs elsewhere.

TURN proposes and asserts the following:

> "Any increases for SCAQMD rules were largely offset by lower costs elsewhere, because costs increased far less than SoCal suggested, and the total number of orders declined, while hours were flat."[33]

First, TURN admits that IST order volumes are increasing. However, TURN proposes that increased estimated expenses in TY 2012 associated with additional IST orders be disallowed and any increased IST expenses be covered elsewhere.

This convoluted logic only reinforces SCG's use of the five-year historical average forecasting methodology. TURN essentially argues that 2010 CSF orders are less than 2009 and therefore, any increase in IST orders should be covered in total CSF 2010 recorded expenses. IST orders are longer in duration. The decrease in 2010 orders is largely driven by a cyclical decline in orders, with Change of Account, Turn-on/Shut-off, Meter Work and Miscellaneous orders accounting for the overwhelming majority of the decline in 2010 from 2009. These types of orders are clearly cyclical in nature.

---

[32] Ibid., p. EF-20, line 11 to p. EF-21, line 21.
[33] Exh. TURN Marcus, p. 38.

TURN chooses an arbitrary year, 2010, to set SCG CSF TY 2012 expenses. This makes no sense when 2010 orders are less than 2009, largely driven by cyclical factors.

b. IST orders are increasing.

Interestingly, TURN chooses 2010 as the year for its proposed TY 2012 CSF expenses when 2010 total orders are less than the 2009 levels. TURN justifies this choice because it believes that SCG 2010 costs increased "not because there was significantly more work to do, but because SoCal's workers got a wage increase that averaged 4.68%, which was 2.02% above labor inflation."[34]

In fact, 2011 IST orders in SCAQMD's service territory are almost twice the level of 2010 orders. (See Table SCG-EF-8 above addressing DRA testimony.) TURN presents no evidence as to where reductions or "lower costs elsewhere" would be generated. Total orders for 2010 are already lower than 2009. Apparently, TURN is forecasting even lower total order volumes in TY 2012 over 2010. In any event, SCG's TY 2012 forecasted order volumes represent the "average" year, not just the latest "down" year, 2010.

c. SCG cannot unilaterally and arbitrarily change wage rates that are in the Collective Bargaining Agreement ("CBA").

TURN implies that SCG should reduce wages or reduce CSF workers in order to reduce costs so that the additional IST work can be accommodated. This proposal is completely unrealistic because the overwhelming majority of CSF operational expenses are labor costs from the "represented or union" employee workforce. The wages of represented employees is

[34] Ibid., p. 36.

collectively bargained. Therefore, these labor expenses are essentially set per the Company's CBA with its labor unions.

4. CSF Dispatch, Supervision and Support Expenses

TURN recommends the following for CSF Dispatch, Supervision and Support TY 2012 expenses:

> "TURN recommends use of the last available recorded year (2010) for the 2012 forecast."[35]

SCG's use of the five-year average forecast methodology for CSF Dispatch, Supervision and Support TY 2012 estimated expenses is consistent with SCG's methodology for estimating CSF operational expenses.

As discussed above, SCG used the five-year average of orders per active meter to forecast order volumes and associated CSF workforce. The CSF supervision forecast was based on maintaining the field employee to supervisor ratio of twelve-to-one, and was applied to the CSF workforce forecast derived from the five-year average forecast methodology. The CSF dispatch office and staff and office support workgroups were forecast using the five-year average of historical recorded expenditures.

SCG's five-year average forecast methodology has been consistently applied to CSF functions. TURN's recommended disallowance of $1,115,000[36] for CSF dispatch office, supervision an office support workgroups should be rejected.

[35] Ibid, p. 39.

[36] Exh. TURN-Marcus, pp. 39-40; the TURN reduction reflects the correction of ($15,000) to SCG's TY 2012 forecast for CSF Support, as shown in Table SCG-EF-1 of this rebuttal testimony.

5. Rejecting TURN's Total Overall CSF Forecast

Unlike TURN's Mr. Marcus who has been selective and inconsistent in his choice of forecasting methods, SCG has consistently used the five-year average forecast methodology with relatively few and explainable exceptions. For this reason, TURN's proposed disallowance of $8,695,000[37] related to CSF Operations, CSF Supervision, CSF Dispatch and CSF Staff should be rejected by the Commission.

6. DRA's and TURN's Proposed Disallowances Are Double Counted

The Commission cannot take both TURN's proposed reductions and DRA's proposed reductions for CSF TY 2012 estimated expenses.

Even TURN points this out. TURN uses a macro total expense estimate by using 2010 recorded expenditures; therefore it has implicitly eliminated and reduced several of SCG's proposed increases for TY 2012. DRA's proposed reductions are "subsumed" under TURN's methodology.[38] Thus, if the Commission accepts TURN's proposed forecast methodology reductions, it cannot also adopt, in addition, DRA's proposed reductions for CSF.

.

III. CUSTOMER CONTACT CENTER

Table SCG-EF-11 summarizes the impacts of DRA, TURN and UWUA's proposals on CCC TY 2012 estimated expenses.

---

[37] Ibid., p. 35 and p. 40; the TURN reduction reflects the correction of ($15,000) to SCG's TY 2012 forecast for CSF Support, as shown in Table SCG-EF-1 of this rebuttal testimony.
[38] Ibid, p. 34.

Table SCG-EF-11
Comparison of SCG, DRA, TURN and UWUA TY 2012 Estimated Expenses

Description	SCG 2009 Actuals	SCG TY2012 Forecast	DRA Recommended	TURN Recommended	UWUA Recommended
Customer Contact Center					
CCC Operations	$31,921	$36,208	$36,208	$32,161	$47,208
CCC Support	$8,657	$10,097	$9,296	$9,192	$10,097
Total CCC Non-Shared Services	$40,578	$46,305	$45,504	$41,353	$57,305
Total CCC Shared Services Incurred Expenses	$114	$119	$119	$119	$119
Total SCG Customer Contact Center	**$40,692**	**$46,424**	**$45,623**	**$41,472**	**$57,424**

A. Rebuttal to DRA-CCC

DRA has recommended that SCG's incremental request of $5,732,000 for CCC estimated expenses be reduced by $801,000.[39] TURN concurs with DRA's recommendation but also recommends additional reductions in CSR and telecommunications estimated expenses of $4,151,000. DRA accepted SCG's five-year average forecasting methodology with customer growth and the resulting CSR call volume forecast.[40]

1. OpEx Analyst

DRA asserted the following:

> "SCG did not explain what analysis this analyst would conduct and why existing staff would be unable to complete the analysis. This unjustified and non-essential position should be denied."[41]

a. SCG provided a transparent explanation of CCC OpEx estimated expenses for an OpEx analyst in prepared direct testimony and in a response to a DRA data request.

In fact, SCG stated explicitly in prepared direct testimony that the new OpEx tools (software) would be used by the analyst to support CCC operations.

[39] Exh. DRA-47, p.6, lines 4-18.
[40] Ibid., p. 6, lines 1-2.
[41] Ibid., p. 6, lines 7-9.

"Annual maintenance expenses for CCC software and hardware (implemented with OpEx) increase TY 2012 estimated expenses by approximately $695,000. Specific additional costs include annual maintenance fees for Avaya Technology (hardware), Nexidia, Click Fox and Merced analytical insight software applications. **As a result of these additional data analytical tools provided by OpEx, SCG CCC will be adding an analyst position to support and use these applications.** An incremental $106,000 is requested to support CCC analysis."[42] (emphasis added)

In addition, SCG's response to DRA data request, DRA-SCG-007-MZX, Question 3 describes the analytical functions and data analytics provided by OpEx analytic software.

"3. Please explain the benefits of the Nexidia, Click Fox, and Merced software applications.

SoCalGas Response:

Nexidia is a phoneme-based speech analytics application that samples approximately 25% of NICE (call recording system) recorded calls. The speech analytics search engine allows SoCalGas to perform key word or phrase searches to sort the customer calls by the key word or phrase spoken by the customer or CSR. The incremental value of this tool is that it enables management to isolate calls for the purposes of performing analysis in order to improve the customer experience.

ClickFox is a channel analytics application that provides data analytic insight into customer transactions and behaviors. Specifically, ClickFox is able to capture transaction information on the various customer contact channels (e.g., CSR calls, IVR, Web, and My Account), sorted by customer and types of transactions. SoCalGas uses ClickFox to analyze customer self service transactions using the Web or IVR channels to identify the most common failure points.

Merced is a performance management tool that provides greater insight and a balanced scorecard of CSR agent performance with the goal of identifying opportunities for operational efficiency, while at the same time ensuring that such improvements are not at the expense of quality.

Response Prepared By: Ed Fong"

b. DRA has accepted SCG CCC OpEx benefits.

As shown by my prepared direct testimony and SCG's response to DRA's data request, the above OpEx analytic software is a necessary element to achieve the stated OpEx CCC annual

[42] Exh. SCG-07-R, p. EF-38, lines 14-21.

benefits of $5.6 million. Although DRA has accepted $5.6 million of OpEx CCC benefits, DRA has rejected the on-going expenses needed to achieve the projected OpEx productivity improvements and customer self-service adoption.[43]

OpEx management tools, Nexidia, ClickFox and Merced, with the proper level of support and analysis, will improve the customer experience, increase self-service adoption and retention, and increase CSR productivity. For example, the Merced software will provide CCC management more comprehensive and detailed insight into individual CSR performance. A critical assumption in SCG CCC estimated expenses is CSR average handle time ("AHT"). SCG TY 2012 CCC estimated expenses assume 231 seconds of AHT for CSR answered calls. However, in 2010, SCG CCC experienced AHT of approximately 260 seconds.[44] To achieve the 231 seconds of AHT productivity assumed in SCG TY 2012 CCC estimated expenses and OpEx benefits, SCG must not only have Merced software (CCC performance management tool), but a trained analyst who can derive insight from the Merced data. In fact, SCG has already hired this OpEx analyst in the CCC. SCG has committed to the OpEx $5.6 million benefits in this GRC, but has not achieved these benefits. The OpEx analyst is necessary to achieve these benefits.

Accordingly, DRA's proposal to disallow the OpEx Analyst estimated expenses of $106,000 should be rejected.

2. Annual Maintenance for Software and Hardware

DRA asserts

> "SCG did not explain why these (OpEx) applications require annual maintenance and why internal IT staff would be unable to perform routine annual maintenance on them."[45]

---

[43] Ibid., p. EF-12, lines 17-19.
[44] SCG response to TURN Data Request, TURN-SCG-DR-23, Q10e and Q10f; see Attachment C.
[45] Exh. DRA-47, p. 6, lines 12-14.

a. DRA has misunderstood or mischaracterized the term "maintenance" within the context of annual fees and charges for software and hardware "maintenance and license" agreements.

As stated in my prepared direct testimony and cited above, the maintenance costs are part and parcel to the hardware and software annual maintenance fees charged by vendors of these products. All major purchased software products have associated annual fees or costs included in the purchase or license agreements. These maintenance fees typically cover vendor releases or updates to their particular software product, e.g., for SCG CCC's Merced, Nexidia and ClickFox software. Table SCG-EF-12 shows the breakdown of the incremental software and hardware maintenance costs and the functionality provided by each software product or call center technology (e.g., automatic call distributor ["ACD"]).

//

//

//

Table SCG-EF-12

Incremental SCG CCC Software Licenses and Maintenance Fees

Software ("SW") / Hardware ("HW") Vendor	TY 2012 - 2009 Change 2009$ (000)	OpEx Related	Functionality
Genesys	$368	Yes	Computer telephony integration SW
Avaya	$243	Yes	Telephony call routing system; SW & HW (ACD, Phone Switch, Gateway)
High Bill Analyzer	$225	Yes	Bill analyzer SW (used by customer and CSR)
ClickFox	$59	Yes	IVR and eServices channels analytics SW
Merced	$35	Yes	Performance management SW
Nexidia	$34	Yes	Speech analytics SW
OpEx SW/HW Subtotal	**$964**		
KANA	$34	No	E-mail service channel application
Quest	$25	No	Oracle database tool
Visual Electronics	$9	No	Wallboard
NICE System	($6)	No	Call recording application
Virtual Hold	($11)	No	Customer call back SW
Aspect	($224)	No	Workforce staffing SW; Aspect telephony system replaced by Avaya
Syntellect	($95)	No	Obsolete; replaced by Genesys
Other SW/HW Subtotal	**($268)**		
Overall Total	**$695**		

Furthermore, SCG's incremental estimated net expenses of $695,000 of OpEx license and maintenance fees include annual fees for basic CCC replacement technologies (e.g., ACD, Interactive Voice Response ["IVR"], and other). Specifically, SCG will incur an additional $964,000 due to new CCC OpEx software and hardware license and maintenance fees and a $268,000 decrease in similar fees for existing software and hardware. In fact, ClickFox, Merced and Nexidia (data and speech analytic software) account for $128,000 of the $964,000 increase in new OpEx CCC software and hardware. The other OpEx license and maintenance fees are essential for basic CCC operational technologies (ACD and IVR).

Accordingly, DRA's proposed disallowance of $695,000 for OpEx license and maintenance fees should be rejected.

b. DRA cannot logically accept $5.6 million of OpEx CCC benefits and at the same time reject the OpEx CCC estimated expenses required to achieve such benefits.

DRA's rejection of the CCC OpEx analyst and CCC hardware and software maintenance expenses makes no sense in light of DRA accepting $5.6 million of annual CCC benefits from OpEx implementation. DRA cannot have it both ways by accepting OpEx CCC benefits but rejecting SCG's OpEx CCC estimated expenses of $801,000 ($695,000 + $106,000 from above) to achieve these benefits. SCG identified $5.6 million of OpEx benefits in prepared direct testimony.

> "CCC productivity improvement or incremental benefits of approximately $5.6 million in TY 2012 attributed to OpEx are also included in Mr. Phillip's OpEx benefits."[46]
>
> "CCC TY 2012 estimated expenses do not reflect incremental OpEx benefits. Estimated incremental OpEx benefits that reduce CSR handled calls because customer contacts are completed via customer self-service channels are included in witness Richard D. Phillips testimony (Exh. SCG-13)."[47]

Accordingly, DRA's proposal to disallow OpEx CCC related expenses should be rejected. If DRA maintains that SCG should forego funding for the OpEx analyst position and the annual license and maintenance fees related to OpEx technologies, the Commission must also eliminate the $5.6 million of forecasted benefits associated with these expenses.

//

//

//

---

[46] Exh. SCG-07-R, p. EF-12, lines 17-19.
[47] Ibid., p. EF-32, lines 14-18.

B. Rebuttal to TURN – CCC

1. CSR Wage Rates

SCG cannot arbitrarily change the CSR wage rates set by the CBA.

TURN proposed a $649,000 reduction in CCC estimated expenses because "SoCal's labor costs are 21% above SDG&E's for full-time CSRs and 33% above SDG&E's for part-timers." (at TURN Marcus, p. 40). The difference in wage rates or compensation between SCG and SDG&E CSRs is irrelevant to TY 2012 estimated expenses for SCG's CCC. SCG's CSRs are "represented" employees (Union). The SCG CSR wages (as well as CSF technician wages) are set by the CBA between SCG and their labor unions. SDG&E CSRs are not part of a bargaining unit. SDG&E CSRs operate under different work rules than SCG CSRs.[48] TURN's proposed reduction in CCC CSR estimated expenses should be rejected because SCG cannot unilaterally and arbitrarily reduce CSR wages.

2. TURN's Judgmental Forecast

TURN's use of 2009 - 2010 call volumes and "judgmentally" assumed "calls per meter" for its call volume forecast is flawed and double counts the impact of OpEx call volume benefits.

TURN states:

> "TURN recommends ***judgmentally*** using 1.35 calls per meter to give greater weight to the recent experience, which is statistically different from earlier experience."[49] (emphasis added)

TURN, in fact, uses a "calls per meter forecast methodology" to calculate its forecasted call volume. (at TURN Marcus, pp. 44-46). Again, TURN is completely inconsistent in its

[48] For example, the proportion of part-time CSRs is restricted at SCG to a maximum of 38%. SDG&E does not have a restriction regarding part-time CSRs.
[49] Exh. TURN Marcus, p. 45.

forecasting approach by now using average of 2009-2010 calls per meter to arrive at a "judgmentally" derived "calls per meter".

3. TURN's Inconsistent Forecasting Methodology for CCC Expenses

a. TURN and UCAN's Mr. Marcus' forecasting methodologies are biased, inconsistent or selective in choosing forecasting methodologies for the CCC CSR call volume forecast.

TURN presents no analysis or evidence as to the "statistically" different numbers for calls per meter. SCG has not seen any evidence of a valid statistical test (or if even a statistical test is appropriate) for determining "different" calls per meter.

TURN Marcus' Table 30 is a blatant example of TURN's bias. (at TURN Marcus, p. 45). TURN derives the average calls per meter for 2005-2009 (1.4223). Since the five-year average 2005-2009 is too high for TURN, TURN then derives an "adjusted" five-year average for 2006-2010. Even this number (1.3915) is too high for TURN. TURN then decides to derive a two-year average for 2009-2010 (1.3200). Wait, TURN sees the 2009-2010 calls per meter is absurdly low (because of OpEx self-service) and then "judgmentally" arrives at an arbitrary 1.3500 calls per meter.

For SCG, TURN witness Mr. Marcus applies TURN's meter growth forecast for TY 2012 to the 1.3500 calls per meter. (at TURN Marcus, pp. 45-46). However, the same Mr. Marcus does not apply the same logic or analysis to his SDG&E CCC call volume forecast. For SDG&E, UCAN's Mr. Marcus dismisses meter growth. For SDG&E, UCAN's Mr. Marcus states the following:

> "UCAN therefore recommends that the Commission adopt a forecast of phone calls based on the average of 2009 as adjusted for the five missing days and 2010; ***any further increase due***

to customer growth should be assumed to be covered by the IVR. The number of calls answered by CSRs is 2,412,010."[50] (emphasis added).

Specifically, TURN's Mr. Marcus states the following for SCG's CCC call volume forecast:

"SoCal's meter forecast is 5,621,055 meters from its active meter forecast. TURN's active meter forecast is 1.18% less in 2012 (5,565,817 meters).

Estimation of total calls then becomes a simple multiplication. It is …

- 1.35 calls X 5,565,817 meters = 7,498,819 calls for TURN."[51]

b. TURN uses different forecasting methodologies for SCG and SDG&E CCC's.

Clearly, TURN has applied two different methodologies for forecasting CSR answered calls between SCG and SDG&E. The circumstances regarding call center technology (ACD, IVR, etc.) are no different for SCG and SDG&E. Yet, TURN inexplicably chooses to apply customer growth to SCG and no customer growth to SDG&E. See Exh. UCAN-2, Prepared Testimony of William B. Marcus, Results of Operations Issues for San Diego Gas and Electric Company General Rate Case, pp. 76-77. In fact, the self-service adoption rate assumed for SCG is even higher than SDG&E's 27%.[52] SCG assumed a 37.5% self-service adoption rate for TY 2012 to derive the $5.6 million of CCC OpEx benefits.[53] TURN and UCAN's witness Mr. Marcus has no rationale for not incorporating customer growth for SDG&E's CCC call volume forecast when he includes customer growth for SCG.

Of course, for CSF estimated expenses, TURN adopted one year, 2010, of actual expenses as its TY 2012 CSF expenses. In the CCC case, TURN includes TURN's meter growth

---

[50] Exh. UCAN Marcus, p. 77.
[51] Exh. TURN Marcus, pp. 45-46.
[52] Exh. SDG&E-13-R, p. EF-29, lines 9-12.
[53] See Attachment D, SCG's response to TURN data request, TURN-SCG-DR-30, Question 4.

assumption (albeit lower than SCG's meter growth). TURN is clearly selective and inconsistent with varying forecast methods.

In sum, TURN and UCAN's forecast for SCG and SDG&E respective call volumes should be dismissed as inconsistent and biased and the Commission should reject TURN's proposed reductions in SCG's CCC Operations.

4. 2010 CCC Call Volumes and OpEx Reduction Benefits

TURN cannot use 2010 CCC historical call volume data for its call volume forecast if it is also accepting $5.6 million of SCG CCC OpEx benefits. TURN is effectively double counting OpEx benefits.

SCG has already included approximately $5.6 million of OpEx CCC benefits from a reduction in CSR answered calls resulting from increased OpEx self-service. See above discussion in rebuttal to DRA (Section III A). Historical 2010 SCG call volumes have embedded reductions from OpEx self-service (eServices and IVR). To then include historic 2010 call volumes in any calculation will automatically bias the call forecast downward. The $5.6 million OpEx benefit or reduction is calculated from SCG's TY 2012 call volume forecast that assumes no OpEx (CCC without OpEx self-service) using 2005-2009 historical data. TURN essentially double counts OpEx benefits when TURN uses 2010 call volume data in its forecast (which already includes reduction in calls from increased OpEx self-service) and then accepts another $5.6 million of OpEx CCC call volume benefits in TY 2012. TURN cannot have it both ways.

However, if the Commission accepts TURN's CCC forecast, then the Commission cannot also take the $5.6 million OpEx reduction in CCC O&M expenses.

5. SCG CCC Workforce Management Model and Productivity Assumptions

TURN's implication or inference that SCG used "substandard call center performance in 2009-2010" as assumptions or as a basis for SCG's CCC estimated expenses for TY 2012 is false. TURN asserts the following:

> "SoCal uses a massive and complex calculation effort to figure this out with all sorts of factors about level of service and occupancy and shrinkage factors (time paid that is not worked), and various adjustments."
>
> "However, as noted above, there was costly and substandard call center performance in 2009-2010, as well as far more overtime in 2010 than in earlier years."[54]

a. SCG did not use lower productivity assumptions (CSR call AHT) in developing its TY 2012 CCC estimated expenses.

TURN is completely off base. TURN displays several charts at TURN Marcus pp. 41-43, showing lower SCG CCC performance, including increases in CSR average handle time per call, high abandoned call rate and lower CSR productivity. SCG has clearly experienced a decline in CSR productivity after the implementation of new (replacement) Op Ex CCC technology in October 2009. However, SCG has been abundantly clear in workpapers, Exh. SCG-07-WP-R, p. 102. (See Attachment E.) SCG assumed pre-October 2009 CSR AHT, Level of Service (LOS), CSR occupancy, and abandoned call rate in developing the TY 2012 CCC CSR FTE requirements. In other words, SCG incorporated the higher CSR productivity levels in recent years when developing TY 2012 expenses. TURN attempts to over simplify the factors and variables required for a comprehensive CCC workforce requirements forecast.

TURN's CCC forecasting methodologies are inconsistent, and even if the Commission chooses either of TURN's forecasting methodologies (TURN with meter growth for SCG and no

[54] Ibid., p. 46.

meter growth for SDG&E), TURN's straight cost per call conversion is too simplistic and does not account for the CCC's target LOS. All call centers must target a level of service (percent of calls answered within 60 seconds). The target response service level is an important factor in determining CSR staffing levels.

TURN's simple cost per call does not account for the LOS factor. Higher LOS targets mean higher CSR FTE requirements. Indeed, common sense and logic dictates that if SCG wanted to answer customer calls sooner (shorter wait queues), then more CSRs are required. SCG and SDG&E's methodology employs a call center workforce management model to develop CSR FTE requirements given specific assumptions (inputs) for forecasted call volumes, CSR AHT, LOS targets and CSR occupancy and shrinkage rates. The SCG and SDG&E call center model is a vendor software product that is widely used in the call center industry to develop optimum CSR staff levels given a target level of service and assumed call volumes.

6. Abandoned Calls

TURN misses even the simple analysis on abandoned calls.

TURN's use of a 3.3% abandoned call rate for TURN's forecast of CCC Support expenses is flawed. (at TURN Marcus, pp. 47-48). TURN assumes the abandoned call rate based on the January – September, 2009 period. TURN assumes that this would be appropriate because this time period is just prior to the CCC technology implementation in October 2009. However, TURN overlooks that the October – December period is the highest period of the year for calls and therefore abandoned calls because of winter seasonal customer service orders (seasonal orders, appliance orders). TURN's January-September 3.3% will understate the annual average abandoned call rate because a low volume of calls occur during the spring and summer months. If TURN were to use a pre-October 2009 abandoned call rate, then the appropriate time period would be the prior 12 months from October 2008 to September 2009 with an abandoned call rate of 3.6%, not TURN's 3.3%.

7. Conclusion for TURN on CCC Disallowances

TURN has used so-called "judgmental" assumptions to derive their estimates, improperly used 2010 call volume data that already includes OpEx call reductions, misrepresented productivity assumptions used in SCG's TY 2012 forecast and proposed reductions to CSR wages that are collectively bargained. TURN's analysis of SCG CCC estimated expenses is fundamentally flawed and inconsistent with their analysis of the SDG&E CCC operations. Accordingly, TURN's proposed $4,151,000 reduction for CCC operations and support expenses should be rejected.

IV. BRANCH OFFICES AND APLS

Table SCG-EF-13 summarizes the impacts of DRA, TURN and UWUA's proposals on SCG Branch Offices and APLs TY 2012 estimated expenses.

Table SCG-EF-13
Comparison of SCG, DRA, TURN and UWUA TY 2012 Estimated Expenses

Description	SCG 2009 Actuals	SCG TY2012 Forecast	DRA Recommended	TURN Recommended	UWUA Recommended
SCG Branch Offices & APLs	$10,137	$11,135	$10,137	$10,400	$13,635

A. Rebuttal to DRA- Branch Offices and APLs

DRA proposes to disallow SCG's requested increase in Branch Office and APL expenditures due to increased facility, customer and employee safety efforts and additional compliance activities related to the Fair & Accurate Credit Transactions Act ("FACTA").

DRA states the following:

> "As part of a presentation entitled "SoCalGas Branch Office Optimization Project 2011," SCG proposes filing an application to close Branch Offices in 2011. The reason for closing branch offices is the significant reductions in customer use. Since 2005, in-person payment transactions have fallen 17% from 8.621 million in 2005 to 7.158 million in 2009. There is no reason to use a three-year average when in-person payment transactions are declining significantly. DRA's recommendation is to use the 2009 expense level, which will allow for adequate security and compliance with the Fair & Accurate Credit Transactions Act given expected further declines of in-person payments." [55]

DRA asserts that since in-person payments are expected to further decline, expenses above the 2009 levels are not necessary for FACTA compliance and increased office security. Furthermore, DRA argues that since SCG is expected to file an application to close some branch offices, increases in TY 2012 estimated expenses should be disallowed. Finally, DRA introduces SCG's presentation to DRA regarding proposed branch office closures as a rationale to disallow SCG TY 2012 branch office estimated expense increases.[56]

1. Status of Branch Office Closures

SCG's anticipated proposal to close some branch offices is not relevant nor in the scope of this GRC.

SCG's anticipated application requesting branch office closures cannot serve as a legitimate basis in this GRC to reduce SCG's TY 2012 branch office estimated expenses.

[55] Exh. DRA-47, p. 7, lines 2-10.
[56] Ibid., p. 7, lines 6-10.

Moreover, if SCG decides to file such an application, it will include a proposal for an adjustment in SCG's revenue requirements to reflect the reduction in branch office net costs. Thus, if branch offices are closed in the future, funding for branch office expenses will be adjusted to account for fewer branch offices, net the cost to achieve such closures. At this time, however, it should not be assumed that SCG will either file the application or that it will be approved. The Commission rejected SCG's TY 2008 GRC request to close selected branch offices.[57] Accordingly, both SCG's branch office application and Commission approval of any SCG branch office being closed are speculative at this point.

2. Branch Office Security Guards and FACTA Activities

SCG has already added branch office security guards (2010) and is handling additional FACTA customer verification activities in accordance with the Federal Trade Commission's ("FTC") timetable for compliance.

SCG added six branch office security guards in 2010.[58] SCG FACTA compliance activities started in November 2009. SCG FACTA activities are in accordance with FTC's timetable, rulings and guidelines. The full-year effect of branch office resources was not captured in adjusted recorded 2009 branch office expenses. Both security and FACTA activities are incremental to base year 2009 branch office activities.

//

///

//

[57] SCG GRC TY 2008 Decision (D.) 08-07-046, pp. 20-21.
[58] Security guards added at the following offices in 2010: Banning, Delano, Dinuba, Hemet, Indio, Santa Ana.

3. Branch Office Staffing Levels

a. SCG branch office staffing levels are already minimized and the decline in branch office transactions is occurring at smaller offices where staffing levels cannot be reduced.

DRA argues that since branch office payments are declining, the current staffing levels are adequate to handle increases in FACTA generated activity and cover expenses for additional security in the offices.

No party will argue that branch office payment transactions are not declining (see Exh. SCG-07-R, Chart SCG-EF-1, p. EF-41). However, 2009 branch office staffing levels already reflect this long-term trend. Many SCG branch offices are already at minimum staffing levels with one-person offices closing for lunch and two daily breaks.[59] Other offices reflect minimum staffing at 1.5 to 2.0 FTEs. Assuming the Commission continues to require that even low transactions branch offices remain open, SCG branch office levels are effectively at minimum staffing levels, regardless of declining payment transaction levels at these smaller offices.

Table SCG-EF-14 shows 2009 and 2010 branch office transactions and staffing levels by office. The data shows that low transaction volume offices, the majority of which show a continued decline in activity levels, are already at minimum staffing levels (two or less staffing), while the majority of high volume transaction offices, staffed with up to five employees are showing an increase in activity levels. Therefore, assuming that SCG's 47 branch offices remain open, the current staffing levels cannot be reduced further in smaller offices that are showing a decline in payment transactions.

[59] SCG one-person branch offices are: San Luis Obispo, Delano, Dinuba, Lompoc and Hanford.

Table SCG-EF-14
Branch Office Transactions & Staffing Levels

Office	2009	2010	Change 2010 to 2009	% Change	Staffing Levels
Crenshaw	191,157	199,112	**7,955**	**4.2%**	5
Van Nuys	248,528	250,575	**2,047**	**0.8%**	5
Central Ave	120,586	174,402	**53,816**	**44.6%**	3
San Fernando	129,843	138,666	**8,823**	**6.8%**	3
Daly Street	141,533	149,232	**7,699**	**5.4%**	3
Watts	111,291	115,109	**3,818**	**3.4%**	3
Riverside	107,464	110,727	**3,263**	**3.0%**	3
Compton	128,328	130,811	**2,483**	**1.9%**	3
Inglewood	157,876	158,028	**152**	**0.1%**	3
Huntington Park	131,524	130,922	-602	-0.5%	3
Pomona	124,353	131,207	**6,854**	**5.5%**	2
Glendale	120,888	127,180	**6,292**	**5.2%**	2
Anaheim	105,692	110,296	**4,604**	**4.4%**	2
Wilmington	86,220	89,706	**3,486**	**4.0%**	2
Santa Maria	53,394	54,486	**1,092**	**2.0%**	2
Santa Fe Springs	75,643	76,411	**768**	**1.0%**	2
Ontario	77,752	77,693	-59	-0.1%	2
San Bernardino	95,460	91,405	-4,055	-4.2%	2
Oxnard	110,199	106,138	-4,061	-3.7%	2
Palm Springs	39,992	35,829	-4,163	-10.4%	2
Fontana	107,688	103,047	-4,641	-4.3%	2
Covina	71,267	57,489	-13,778	-19.3%	2
Hollywood	117,220	96,381	-20,839	-17.8%	2
Lancaster	114,883	81,449	-33,434	-29.1%	2
El Centro	78,106	85,205	**7,099**	**9.1%**	1.5
Porterville	71,998	78,143	**6,145**	**8.5%**	1.5
Indio	61,637	66,058	**4,421**	**7.2%**	1.5
Monrovia	29,999	32,619	**2,620**	**8.7%**	1.5
Banning	36,620	38,623	**2,003**	**5.5%**	1.5
Alhambra	77,246	78,282	**1,036**	**1.3%**	1.5
San Pedro	78,434	78,530	**96**	**0.1%**	1.5
Visalia	65,162	64,813	-349	-0.5%	1.5
Santa Barbara	36,203	34,438	-1,765	-4.9%	1.5
Bellflower	76,094	74,166	-1,928	-2.5%	1.5
Santa Monica	70,142	67,221	-2,921	-4.2%	1.5
Corona	88,235	84,560	-3,675	-4.2%	1.5
South Gate	101,298	96,744	-4,554	-4.5%	1.5
Commerce	83,277	78,356	-4,921	-5.9%	1.5
Hemet	51,669	45,338	-6,331	-12.3%	1.5
Pasadena	59,677	52,811	-6,866	-11.5%	1.5
Santa Ana	88,690	78,158	-10,532	-11.9%	1.5
El Monte	89,920	68,180	-21,740	-24.2%	1.5
Lompoc	52,488	53,458	**970**	**1.8%**	1
San Luis Obispo	18,362	18,048	-314	-1.7%	1
Hanford	74,044	65,293	-8,751	-11.8%	1
Delano	50,370	38,899	-11,471	-22.8%	1
Dinuba	53,493	37,642	-15,851	-29.6%	1
Total	4,261,945	4,211,886	-50,059	-1.2%	

4. APLs and FACTA Expenses

New APLs have been added in 2011 and APL transactions are increasing.

Finally, SCG APL transactions are clearly increasing. See Table SCG-EF-15 below. In fact, SCG has expanded SCG's APL network since base year 2009. As of July 2011, SCG has 331 APLs compared to 207 in July 2009. In other words, SCG APLs have increased almost 60% since 2009. Accordingly, APL transactions have increased, thereby raising total APL costs. DRA's methodology does not account for the fact that APL transaction volumes are actually increasing.

Table SCG-EF-15
Authorized Payment Location Statistics

Time Period	# of APL Locations	# of APL Transactions
YTD July 2009	207	1,726,219
YTD July 2011	331	1,881,121

SCG has demonstrated that branch office staffing in 2009 is already at minimum levels, while at the same time, APL transactions are increasing. SCG has added security guards at branch offices. SCG branch offices have added responsibilities and activities regarding FACTA compliance with customer authentication regulations.

DRA, on the other hand, has not provided any evidence to show that the 2009 expense level will allow for adequate security and compliance with the FACTA, which are incremental activities relative to 2009 expenses. In addition, DRA has not contested the need or levels for those activities. Thus, DRA's proposed disallowance for FACTA related expenses is not justified and should be rejected. Incremental expenses for six security guards added in 2010 have already been incurred by SCG. In addition, APL expenses have already increased as 2010 APL transactions are greater than 2009 levels.

B. Rebuttal to TURN- Branch Offices and APLs

FACTA Implementation

TURN's proposed disallowance of incremental expenses for implementation of FACTA red flag rules will be unfair to customers and does not account for future expenses beyond 2010 recorded expenses. (at TURN Marcus, p. 48)

TURN states the following:

> "Incremental costs of implementing the Fair and Accurate Credit Transactions (FACTA) red flag rules to prevent identity theft were only $119,000 – as compared to SoCal's estimate of $275,000. Implementation of these rules at Authorized Payment locations has been postponed indefinitely. (TURN DR 23-17)."[60]

SCG has not cancelled FACTA implementation and must find alternatives to APLs for FACTA.

Implementation of FACTA at APLs has been "postponed", not cancelled. As explained in response to TURN data request, TURN-DR-23, Question17, FACTA implementation at APLs raised privacy and identity theft concerns:

> "17. Re Workpapers 117-119 (Branch Offices):
>
> a. Please provide the status of FACTA Red Flag Implementation in 2010. When was it implemented? What was the incremental cost of FACTA Red Flag Implementation in 2010?
>
> Response:
>
> FACTA Red Flag rules were implemented in the branch offices on November 2, 2009. The incremental cost in 2010 associated with the implementation was $119,000.

[60] Exh. TURN Marcus, p. 48.

SoCalGas had initially planned on implementation of the Red Flag rules to authorized pay locations (APLs). However, because of concerns with customer information security and with customers sharing personal information with non-company employees, APLs were not included in the FACTA Red Flag implementation. SoCalGas is investigating other avenues for customers to provide identity validation."

As indicated in the foregoing response, SCG is seeking alternative solutions to increase the opportunities for FACTA customer identification verification. Specifically, SCG is assessing and evaluating the use of third party services that provide customer "challenge" questions to ensure customer identity verification. These additional vendor services will require the additional funds proposed by SCG for FACTA implementation.

TURN's proposed disallowance of funds for FACTA implementation should be rejected.

V. METER READING

Table SCG-EF-16 summarizes the impact of DRA's proposal on SCG's meter reading TY 2012 estimated expenses. TURN and UWUA did not dispute SCG's meter reading expenses.

Table SCG-EF-16
Comparison of SCG, DRA, TURN and UWUA TY 2012 Estimated Expenses

Description	SCG 2009 Actuals	SCG TY2012 Forecast	DRA Recommended	TURN Recommended	UWUA Recommended
Meter Reading					
Meter Reading-District Operations	$25,216	$25,454	$25,454	$25,454	$25,454
Meter Reading-Clercial Operations	$1,038	$1,023	$1,023	$1,023	$1,023
Meter Reading-Supv/Training/Programs	$3,230	$3,631	$3,191	$3,631	$3,631
Meter Reading-Staff Support	$2,173	$2,809	$2,173	$2,809	$2,809
Total Meter Rdg Non-Shared Services	$31,657	$32,917	$31,841	$32,917	$32,917
Total Mtr Rdg Shared Services Incurred Expenses	$1,238	$844	$844	$844	$844
Total SCG Meter Reading	**$32,895**	**$33,761**	**$32,685**	**$33,761**	**$33,761**

SCG requested an increase of $866,000 in TY 2012 estimated meter reading expenses over adjusted recorded 2009 expenses. DRA proposed a disallowance of $1,076,000 of SCG's TY 2012 request. DRA asserts that

> "SCG should not be able to hide behind its AMI business case in order to receive double recovery for positions it chose not to fill. The Commission should disallow these expenses."[61]

DRA is completely mistaken with regards to its assertion of double recovery.

In fact, the exact opposite is true. If the Commission does not authorize meter reading expenses that were authorized in SCG's TY 2008 GRC, then DRA's proposal is undeniably reducing SCG revenue requirements twice for the same SCG AMI meter reading benefits. In other words, if DRA's disallowance request is approved, SCG would have reduced revenue requirements pursuant to D.10-04-027 in SCG's Advanced Metering Infrastructure Balancing Account ("AMIBA") with meter reading benefits, and then again reduce the same meter reading revenue requirements in this TY 2012 GRC.

DRA has either ignored or misunderstood SCG's prepared direct testimony explaining the necessary reconciliation between SCG AMI benefits and TY 2012 GRC estimated expenses. DRA's objection and/or confusion seems to be rooted in some misunderstanding regarding the approved meter reading positions that were eliminated due to the AMI program (which is a benefit), and thus not staffed with employees. In asking for funding of these same positions in this GRC, DRA does not understand that SCG is not actually asking to fill these positions, but rather to continue to include the cost in base rates because the associated reduction is already included in the AMI balancing account pursuant to the decision approving that program. If the CPUC were to remove the amounts as requested by DRA, they would actually be giving ratepayers a double-benefit for eliminating the same positions.

---

[61] Exh. DRA-47, p. 8, lines 13-15.

Without repeating my prepared direct testimony regarding TY 2012 meter reading expenses and SCG AMI benefits,[62] DRA cannot have it both ways. That is, DRA should not be allowed to capture SCG AMI benefits in SCG's AMIBA net revenue requirements, and take the same benefits again in TY 2012 revenue requirements. If the Commission chooses to accept DRA's proposal to reduce TY 2012 estimated meter reading expenses by the amount of SCG AMI meter reading benefits, then SCG will adjust the AMIBA benefits formula accordingly to reflect final authorized TY 2012 operating expenses for meter reading.

SCG reaffirms its position that all SCG operating benefits that are reflected and authorized in SCG's AMI decision, D.10-04-027, be recorded in SCG's AMIBA revenue requirements. To ensure that the SCG AMIBA operating benefits formula is consistent with the SCG AMI approved business case, the adopted TY 2008 GRC meter reading revenue requirements must be comparably adopted in SCG's TY 2012 GRC. Therefore, the Commission should reject DRA's proposed disallowance of SCG TY 2012 meter reading expenses.

VI. MISCELLANEOUS REVENUES

TURN states the following:

> "TURN uses a two-year (2009-2010) average in dollars per customer (covering the period of time after the 2008 price increases were fully in effect) multiplied by TURN's 2012 customer (active meter) base, increasing revenues by $181,000 in total."[63]

TURN's analysis of miscellaneous revenues for the Residential and Commercial Parts Programs is another example of TURN's selective forecasting methodology.

SCG does not dispute the use of the latest approved prices in 2008 for residential and commercial parts. However, TURN reveals its selective use of forecasting methods when it uses

[62] Exh. SCG-07-R, pp. EF-45-46, line 15 to line 7.
[63] Exh. TURN Marcus, p. 55.

a two-year (2009-2010) average in dollars per customer with customer growth to calculate TY 2012 increases in miscellaneous revenues. In this case a larger miscellaneous forecast is better for TURN (reduces SCG revenue requirements). Thus, in this case, TURN applies meter growth for forecasting CSF miscellaneous revenues. However, in the case of forecasting reduced CSF expenses, TURN does not apply meter growth. (See above Section II.B). TURN is hypocritical. Specifically, as much as TURN does not accept the CSF five-year average orders per meter methodology, TURN will use the CSF "average dollars per customer (meter)" for estimating CSF related miscellaneous revenues. TURN clearly will adopt whatever forecasting method that best suits its predisposed bias against increased revenue requirements. Accordingly, TURN's miscellaneous revenue proposal should be rejected.

VII. CAPITAL PROJECTS

DRA proposed disallowance of three CSF and CC capital projects: (1) CSF Mobile Data Terminals ("MDT"); (2) Meter Reading Handheld System Replacement; and (3) PACER Mobile Data Terminal Refresh. These three capital projects total $11,740,000 over the 2010-2012 period.[64]

//

//

//

[64] Exh. DRA-47, pp. 9-11.

Table SCG-EF-17

DRA Proposed Disallowance for CSF and CC Capital Projects
2009$ (000)

Capital Project	2010	2011	2012	Total
CSF Mobile Data Terminals	$486	$282	$147	$915
PACER Mobile Data Terminal Refresh			$3,908	$3,908
Meter Reading Handheld System Replacement		$243	$6,674	$6,917
Total	$486	$525	$10,729	$11,740

A. CSF Mobile Data Terminals ("MDTs")

DRA's objection to funding MDT costs appears to stem from its objection to cost increases associated with services provided by SCG to industrial customers. Indeed, DRA asserts the following:

> "DRA recommends disallowing this [MDT] project because SCG should not be hiring new staff to provide air quality-related services to large customers."[65]

However, as explained in Section II. A, above, the services provided by SCG to industrial customers are no different than services provided prior to the implementation and active enforcement of SCAQMD rules. Moreover, because of newly instituted SCAQMD engine/boiler emission standards, SCG has received more requests for these industrial customer services. Consistent with these facts, DRA acknowledges that SCG is asking for the new MDTs "due to growth in order volume *and* growth in air quality-related service activities."[66] (emphasis added) However, DRA fails to consider that only $137,000 of the CSF MDT capital request is related to

[65] Ibid., p. 9, lines 23-24.
[66] Ibid, p. 9, lines 20-22.

the increase of 19 FTEs for ISTs. The remaining $778,000 is related to increases in FTEs due to general customer growth and related CSF FTEs.

Because DRA did not dispute the TY 2012 CSF order volume forecast due to the five-year average methodology and customer growth, it must allow a minimum of $778,000 for the related capital expenditures required because of increased CSF field personnel (i.e., the need for additional MDTs).[67] With respect to the remaining $137,000, as explained in Section II. A. above, it is justified by the forecasted increase in IST activities. Accordingly, SCG believes the Commission should approve the entire $915,000 requested CSF MDTs.

B. Meter Reading Handheld System Replacement

DRA asserts the following:

> "DRA recommends disallowing this project because SCG presented no evidence that the existing technology impedes operations or that new handheld computers will produce tangible ratepayer benefits. The Commission should not authorize utility investment projects to upgrade technology if the utility cannot make a cogent showing for why the technology upgrade is needed. So long as SCG's current handheld computers allow field technicians to complete their work and service quality can be maintained, no replacements are necessary."[68]

Meter Reading handheld computers are long past their useful and depreciable life.

As stated in my prepared direct testimony,

> "The meter reading handheld vendor will no longer support the current DAP 9500 and 9800 handhelds."[69]

In other words, current meter reading handhelds will not have replacements available from the vendor. So as meter reading handhelds fail, no replacement parts or handhelds will be

[67] Ibid., pp. 3-4, line 24 to line 3.
[68] Ibid., p. 10, lines 8-14.
[69] Exh. SCG-07-R, p. EF-61, lines 18-19.

available. Even as additional handhelds may be necessary because of customer growth, no new compatible handhelds will be available for purchase.

Moreover, the median age of SCG meter reading handheld computers is fifteen years, long past their depreciable book life. These facts were explained in SCG's response to DRA data request, DRA-SCG-007-MZX, Question 5 with the following:

> "5. Why will the meter reading handheld system be replaced with a new system in 2012? (See EF-42)
>
> SoCalGas Response:
>
> The current SoCalGas meter reading handheld system was originally purchased and installed in 1996 and therefore is almost 15 years old. Half of the handheld computer units are the original installed model (DAP 9500) and are operational only due to having sold 500 of the older units back to the vendor for use as spare repair parts. The remainder of the handheld computer units are model DAP 9800, a version that was purchased in February 2006. This handheld will reach end of life in 2011-2012. Handheld computer repairs have consistently increased over the past five years, thus impacting operations. Additionally, the handheld computer units and associated software are not capable of expanding to other desirable applications such as carrying meter reading re-read orders or point-and-click Automated Meter Reading for hard and/or unsafe to access meters.
>
> Please refer to Mr. Fong's NOI testimony, Exh. No. SCG-07, p. EF-54, lines 9-23, and Mr. Nichols' NOI capital workpapers, Exh. No. SCG-12-CWP, pp. JCN-CWP-92 through 93, for additional details pertaining to the replacement of the meter reading handheld system.
>
> Response Prepared By: Ed Fong"

When meter reading handhelds fail and no replacements are available, then customer meters cannot be read in an efficient matter or not read at all. Customers are then forced to have estimated meter reads and therefore, estimated monthly bills. The latest SCG historical data shows that approximately 350 to 400 meter reading handhelds require maintenance per year. Table SCG-EF-18 shows the number of handhelds that have required maintenance from 2009 when SCG began formally tracking handheld repairs, through August year-to-date 2011.

Table SCG-EF-18
Meter Reading Handhelds Requiring Maintenance

Year	# of Handhelds Requiring Maintenance
2009	384
2010	341
YTD August 2011	447

SCG has approximately 1,000 meter readers. Clearly, with the number of meter reading handheld computers requiring replacement or maintenance every year, the lack of vendor support and availability of replacement parts is an untenable operational issue. If SCG is not allowed to replace the current meter reading handheld computers, then SCG's overall meter reading efficiency will decline over time. Accordingly, DRA's proposed disallowance of the Meter Reading Handheld Replacement project should be rejected.

C. PACER Mobile Data Terminal Refresh

CSF personnel have mobile data terminals (MDTs are hardened lap top computers) in their vehicles. These MDTs have two-way wireless communications that allow CSF orders to be routed and scheduled to specific individual CSF personnel. The MDT includes several applications (programs) that allow field personnel to view, open and close their assigned service orders. Generally, MDTs are critical tools to SCG's field personnel.

DRA asserts the following:

> "DRA recommends disallowing this project for the same reason as stated above. Namely, SCG presented no evidence that continued use of the current MDTs would impair operations and SCG did not justify the benefits of adding Windows 7 and new applications." [70]

[70] Exh. DRA-47, p. 10, lines 20-23.

SCG's current stock of MDTs runs on the Windows XP operating system ("OS"). As explained in my direct testimony and response to DRA's data request, DRA-SCG-112-MZX, Question 1, SCG needs to replace Windows XP with Windows 7.

DRA has ignored facts and the abundance of evidence stated in response to DRA data request, DRA-SCG-112-MZX, Question 1.

SCG responded to DRA's question regarding the upgrade to Windows 7 desktop operating system.

"1. Please explain SCG's decision to upgrade to Windows 7. Include any cost/benefit analysis conducted and all relevant workpapers.

SoCalGas Response:

Sempra Energy is migrating/transitioning to Windows 7 because the current operating system, Windows XP, will no longer be supported by Microsoft. See Microsoft support lifecycle (see http://support.microsoft.com/gp/lifepolicy). Windows XP is currently in Extended Support, meaning the only items available from Microsoft are security updates. Non-security updates are no longer provided, nor are Service Packs. New applications from Microsoft are not being made available for the Windows XP operating system. Windows XP will exit Extended Support from Microsoft on April 8, 2014 (see http://support.microsoft.com/lifecycle/?p1=3223). As of that date, not even security updates will be provided by Microsoft, even if a vulnerability is being exploited for Windows XP.

In order to maintain proper security of corporate and customer data, workstations running Windows XP need to be migrated to a later operating system no later than April 8, 2014. This migration requires hardware upgrades and/or replacement, and software compatibility checks with the new operating system.

For further discussion on the Windows 7 Platform Replacement Program, please refer to Mr. Jeffrey C. Nichol's testimony, Exhibit No. SCG-12, p. JCN-63, lines 8-31 and p. JCN-64, lines 1-3.

Attached is a copy of the Windows 7 Platform Replacement Program Business Case (as of 7/22/10). TY 2012 GRC workpapers supporting the Windows 7 upgrade can be found in Mr. Nichols' capital workpapers, Exhibit No. SCG-12-CWP, pp. JCN-CWP-123 and JCN-CWP-153 through 158. Please note that the dollars presented on slide 7 of the Business Case –Program Financial Overview are shown in 2010 dollars and include labor and non-labor overhead loaders and are not comparable to the dollars shown on the GRC capital workpapers."

Attachment can be found in SCG response to data request DRA-SCG-112-MZX, Question 1."

Clearly, SCG has presented a business case to replace the existing Microsoft XP desktop OS with Windows 7. More succinctly, the attachment contained in response to DRA data request DRA-SCG-112-MZX, Question 1, includes the following (Slide # 10) explaining the risk if Windows XP is not replaced with Windows 7. Since SCG has committed to Windows 7, the MDTs must be upgraded to Windows 7.

> **"If this work is delayed, Windows XP will continue to function; however,…**
>
> - ✓ It will be more difficult to get new functional hardware and peripherals as vendor support for XP drivers will wane;
> - ✓ Internal technical support will become more difficult, as there will be fewer resources who will have knowledge of older technologies;
> - ✓ Client training costs will increase, since more training will be devoted to training old technology;
> - ✓ New applications will not be compatible with older Windows XP OS, gradually impacting our clients ability to perform business functions –this includes ability to access web sites due to outdated IE 6;
> - ✓ After April 8, 2014, security patches will no longer be provided by Microsoft for Windows XP OS
>   - In 2009, when Windows 2000 was 9 years old, there were 25 Critical OS updates, 15 Important, and 1 Moderate.
>   - Expectation is that Windows XP will have the same level of security risks or more, as it approaches end of support which will go unmitigated."

In sum, the need to update to Windows 7 OS requires an update to SCG's MDTs. That is, the current CSF MDTs must be replaced so that the MDT PACER software can reside on Windows 7. Ignoring these facts, DRA asserts the following:

> "DRA recommends disallowing this project for the same reason as stated above. Namely, SCG presented no evidence that continued use of the current MDTs would impair operations and SCG did not justify the benefits of adding Windows 7 and new applications." [71]

DRA's testimony is reflective of DRA's general refusal to recognize the critical importance of maintaining an up-to-date OS and compatible hardware. Without a current OS and compatible hardware, SCG will be unable to take full advantage of evolving technology,

---

[71] Exh. DRA-47, p. 10, lines 20-23.

which would improve SCG's ability to serve its customers. In this case, timely replacement of the old MDTs is important for both operational and security purposes.

Moreover, the MDTs SCG purchased in 2004-2006 (approximately 1,200) have exceeded their three year warranty agreement and five year depreciable life (book life). The current MDTs will no longer be supported by the hardware manufacturer. Also, these MDTs have shown an increasing need for repair in recent years (hardware failure). See Table SCG-EF-19 below for MDT maintenance history.

Table SCG-EF-19
SCG PACER MDT Repairs

Year	MDT Repairs
2008	360
2009	530
2010	850
YTD June 2011	430

DRA provides no evidence to support its claim MDTs are not "mission critical,"[72] and the antiquated idiom "if it ain't broke, don't fix it," as the primary crux of its objection underscores DRA's lack of appreciation for the sophistication involved when it comes to timely replacement of technology for operational and security purposes. CSF MDTs are, in fact, mission critical. Without secured and reliable MDTs for SCG's PACER system, SCG would experience difficulty in providing daily schedules and routes to approximately 1,200 CSF field personnel. Even more important, CSF field personnel are dispatched to respond to emergency orders on a near-real time basis. Without operational, secured and reliable MDTs, SCG field

[72] Ibid, p. 10 line 24 to p. 11 line 1.

personnel would not be able to receive same day emergency dispatched orders. For all these reasons, DRA's proposed disallowance for PACER MDT Refresh must be rejected.

VIII. UWUA

A. Introduction to UWUA Proposals

UWUA proposes to modify SCG service policies regarding A1 leak orders, completion of CSF orders, inspection of gas appliance connectors, CCC CSR response time, Branch Office job classifications, and CSF work standards.

UWUA proposed the following specific changes to SCG customer service goals

- Achieve 100% response to A1 leak orders within the 30 and 45 minute windows (30 minutes during business hours [Monday-Saturday 7 AM to 5 PM excluding holidays] and 45 minutes during non-business hours); (at Exh. UWUA-6, witness Mr. Robles, p.2 lines 18-20 and Exh. UWUA-4, witness Ms. Logan, p. 7 line 20 to p. 8 line 17);

- Achieve an average two-day order completion schedule ("OCS") for all customer orders (at Exh. UWUA-7, witness Mr. Barber, p. 2 line 25 to p. 3, line 6);

- Conduct checks of all gas appliances for "brass" connectors and offer replacement of these connectors when a qualified SCG employee is at a customer's premises (at Exh. UWUA-8, witness Mr. Carrasco, p. 7, lines 1-11);

- Increasing the CCC level of service ("LOS") to where 90% of CCC in-bound calls are answered within 60 seconds (at Exh. UWUA-5, witness Mr. Salas, p. 2, lines 18-26 and p. 14 line 21 to p. 15, line 6); and

- Staff all branch offices with a higher job classification of Customer Contact Representatives ("CCR") (at Exh. UWUA-2, witness Mr. Frias, p. 8, lines 26-27 and p. 9, lines 3-12 and Exh. UWUA-4, witness Ms. Logan p. 9, lines 12-16).

In addition to addressing these proposals, I will clarify several SCG CSF policy, procedure and practice issues raised by UWUA, including CSF time standards for orders and classification of leak orders.

B. A1 Leak Orders

UWUA proposes a service and safety standard of "100% timely response to A1 leak calls from the public". UWUA further claims that SCG's current response time "creates a significant hazard to the public."[73]

1. SCG Response Time to A1 Leak Orders

SCG average response times to A1 leak orders are within the current standards of 30 minutes during SCG business hours and 45 minutes during non-business hours.

SCG CSF has established a goal of responding to A1 customer reported gas leaks within 30 minutes of the customer request. For all other non-business hours, SCG has established a standard of responding within 45 minutes. SCG CSF normal business hours are Mondays through Saturdays 7 AM to 5 PM. SCG call center representatives are available 24/7. All customer emergency calls (gas leaks) are automatically routed to the front of the call queue and will be answered by the first available qualified CSR.

SCG's average A1 leak order response time (when SCG personnel first arrive on the customer's premises) has been well within the 30 minutes with 2009 averaging approximately 20 minutes and 2010 averaging approximately 22 minutes. The percentage of A1 leak orders that did not meet the 30 minutes or 45 minutes response window in 2009 and 2010 are 4.8% and 8.3%, respectively.

---

[73] Exh. UWUA-6, p. 2, lines 18-22.

2. Increase in A1 Leak Orders in 2010

San Bruno gas explosion incident has generated a higher level of customer awareness and an increase in A1 leak calls.

SCG responded to 17.2% more A1 leak orders in 2010 over 2009 (80,681 versus 68,815). SCG customers are more aware and sensitive to gas safety since the San Bruno gas pipeline explosion in Pacific Gas & Electric's ("PG&E's") service territory on September 9, 2010. Although the average response time increased in 2010 from 2009, the increase of 2 minutes does not appear to be significant given the significant increase in the volume of A1 leak orders. See Table SCG-EF-20.

Table SCG-EF-20
SCG Response to A1 Leak Orders

Year	Reported A1 Leaks	Missed Window	% Missed	Average Response Time Minutes
2007	69,117	3,792	5.5%	21
2008	67,673	3,075	4.5%	20
2009	68,815	3,312	4.8%	20
2010	80,681	6,716	8.3%	22

Table SCG-EF-21 shows the immediate impact of the San Bruno incident on SCG A1 leak orders. During the September – December 2010 period, SCG experienced approximately 11,700 more A1 leak orders than this same period in 2009 (year prior to the San Bruno incident). The San Bruno incident clearly raised awareness of natural gas safety issues with SCG customers.

Table SCG-EF-21
SCG A1 Leak Orders After San Bruno Incident

	2009				2010			
Month	Reported A1 Leaks	Missed Window	% Missed	Average Response Time Minutes	Reported A1 Leaks	Missed Window	% Missed	Average Response Time Minutes
September	4,030	185	4.59%	19.70	6,341	543	8.56%	22.12
October	6,315	280	4.43%	19.37	8,226	855	10.39%	24.97
November	6,581	303	4.60%	19.82	11,696	1220	10.43%	23.59
December	9,654	522	5.41%	19.98	12,033	1357	11.28%	23.44

3. 100% Standard for A1 Response

a. A 100% standard for A1 response would be impossible to attain.

SCG has always been the standard bearer for service[74] and is committed to a continuous effort to improve safety performance by building a safety oriented culture. (See SCG witness Mr. Mark L. Serrano's rebuttal testimony.) Annual A1 leak orders have hovered around the 68,000-70,000 range during the 2007- 2009 time period. However, 2010 A1 leak orders jumped to approximately 81,000. Even with the significant increase in A1 leak orders in 2010, SCG's average A1 leak order response time was only 2 minutes greater than 2009 and well within SCG's response windows of 30 and 45 minutes.

To achieve 100% response for all A1 leak orders would be virtually impossible. Logistic, geographic and random circumstances would be such that even with significant increases of staffing in CSF Energy Technician Residential ("ETR"), arriving at a leak order within the 30 and 45 minute time windows 100% of the time is not possible. For example, in outlying rural locations, the closest SCG ETR may be farther than 30 minutes away from the A1 leak order

[74] JD Power and Associates Customer Satisfaction Study has consistently ranked SCG #1 or #2 in customer satisfaction within the recent years. See Attachment F.

call. Note that emergency A1 leak orders are typically dispatched in real time from SCG's CSF dispatch office. This real-time dispatch of SCG personnel to the specific A1 leak order location often requires the re-routing of an ETR that is on a current order (either at a customer's premises or driving to such an order).

Historically, even during the best of recent years, SCG has averaged slightly less than 6% annual system missed A1 leak orders. Adding additional ETRs may modestly reduce the average response time, but even a significant number of additional ETRs would not assure that 100% of the A1 leak orders are within the SCG emergency response windows.

b. SCG has demonstrated timely response to A1 leaks and no safety incidents have been reported because of late response.

Table SCG-EF-20 above shows that even with the significant increase in A1 leak orders in 2010 over 2009, SCG response time is well within its goal of 30 minutes and 45 minutes. SCG knows of no incident nor of any evidence that the increase in average A1 response time of approximately 2 minutes (between 2010 and 2009) led to a customer safety incident that was not addressed in a safe and timely manner.

C. Order Completion Schedule ("OCS") of Two Days

UWUA states the following:

> "I will provide information to support the two-day order completion for B-, C- and D-type orders, by explaining how prompt completion improves customer safety."[75]

UWUA recommends adding 120 ETRs with incremental estimated annual costs of $14.1 million.[76,77]

---

[75] Exh. UWUA-7, p. 2 line 28 to p. 3 line 1.

UWUA clearly states the following for estimating incremental ETRs to meet 100% A1 leak order response times and a two-day order completion schedule for all non-A1 orders:

> "After conferring with my colleagues Alex Robles and Ramiro Carrasco, who serve in different SCG Regions I think that adding at least 120 additional ETRs to the entire system is reasonable, although adding only per base may not be adequate in Pacific Region."[78]

1. UWUA Workforce Estimates

a. UWUA's estimate of additional ETRs needed to meet their recommended CSF service levels is a "best guess".

UWUA incremental workforce estimates needed for a two-day OCS are based on the judgment of three Union-represented employees who have many years of CSF experience but no formal background in forecasting, optimum staffing, routing and scheduling methods.

b. SCG will require significant additions to workforce to meet the two-day OCS.

SCG has conducted a more detailed analysis of minimum incremental ETR FTE requirements needed to meet a two-day OCS for customer generated orders. SCG restricted the two-day OCS requirement to "customer generated" orders which are a subset of UWUA recommended B and C orders. The conclusion of this analysis is that to satisfy the two-day OCS, SCG will require approximately 539 additional ETRs at an approximate estimated incremental annual expense of $40.7 million.[79] See workpaper SCG-207-WP-CSF.

---

[76] Ibid., p. 9, lines 18-26.
[77] Exh. UWUA-4, p. 8, lines 3-17.
[78] Exh. UWUA-7, p. 9, lines 23-26.
[79] Estimated CSF incremental ETR expenses do not include vehicles, MDTs, and associated pension and benefits, payroll taxes, worker compensation and other loaders. Associated incremental supervisory positions and related expenses have also been excluded. Incremental supervisory expenses are an additional $4.3 million annually.

This analysis involved the review of 2010 recorded daily data covering the order types that would be included in the two-day OCS window. As a workload balancing technique, SCG levelized scheduled CSF orders between Mondays and Tuesdays (Tuesdays and Wednesdays after 3 day holiday weekends). CSF orders typically peak on Mondays if a two-day OCS is the goal (Monday would include all customer generated orders requested on Thursday, Friday and Saturday of the prior week).

SCG's more rigorous estimate is more than just a "best guess" estimate. Therefore, if the Commission adopts UWUA's recommendation for CSF to achieve an average of a two-day OCS for all non-A1 CSF orders, then the Commission should adopt SCG's more reliable estimated expenses of $40.7 million for an additional 539 ETRs and $4.3 million for additional supervision in "direct" costs.

D. Brass and Two Piece Connectors

UWUA recommends the following regarding customer on-premise inspection of appliance connectors:

> "The UWUA proposal is to accelerate identification and removal of dangerous connectors. We propose a modified version of the SCG approach from the 1980's: permitting ETRs or other qualified SCG employees who have entered the premises of a customer to check the connectors proactively on every appliance, and change out any dangerous two-piece brass connectors or copper connectors immediately. Or, if the SCG worker is not qualified as in the case of a contract employee performing seasonal pilot lighting, call in a service order to dispatch an ETR on a priority basis. Replacing all of the connectors at once would permit charging a single labor charge plus the cost of parts, and thus save the customer money. Offering to pay for the connector replacement on the bill might also save the customer time and money.
>
> For customers enrolled in the CARE program, connector change would be performed free of the $62 charge."[80]

[80] Exh. UWUA-8, p. 7, lines 1-13.

UWUA does not provide an estimate of incremental costs required to institute their recommendation of checking every appliance for two-piece brass connectors or copper connectors immediately when at the customer's premises.[81]

1. SCG Policy On Inspection of Appliance Connectors

a. SCG CSF personnel are not restricted from addressing other customer issues or appliances if the customer so requests while on a customer's premises.

First, SCG has an explicit policy that SCG personnel can check other appliances that are not specifically the "cause of the request" if the customer has expressed their desire to do so while SCG personnel is on the customer's premises. ETRs are trained to address the cause of the request but can check other appliances or gas related issues if the customer identifies such issues when the ETR (or other SCG personnel) is at the customer's premises. SCG policy states (Gas Standard 142.0060):

> "All customer requests for service to other appliances while on the premise are honored, as long as the workload permits taking extra work without causing overtime and the Field employee is properly trained to perform the work request. Otherwise, the Field employee issues a service order for future completion or has the customer call the Customer Contact Center (CCC)."

b. SCG personnel are required to check connectors of appliances being serviced.

UWUA recommendations regarding two piece connectors and brass connectors would require SCG to inspect all gas appliances when working on a customer's premises. However, UWUA has not quantified the estimated costs, nor the increased level of safety that could result. SCG believes that a sufficient level of safety is already provided to customers through the current connector inspection policy and procedure. Specifically, when customers request an order that requires SCG to enter the premises and inspect gas appliances, SCG completes those

[81] Ibid, p. 7, lines 25-27.

inspections for "unacceptable" connectors. SCG policy dictates the following in Gas Standard 142.0132 Appliance Connectors, Section 3. Inspection:

> "3. INSPECTION
>
> 3.1 Inspect the appliance connector to ensure it is an acceptable type whenever the appliance is serviced, inspected or adjusted.
>
> 3.2 Inspect all connectors at the premises when an unacceptable two-piece or copper tubing connector is found installed on an appliance.
>
> 3.3 Notify your Supervisor for follow-up action when an unacceptable two-piece or copper connector is encountered in a tract or multiple dwelling and similar connectors are thought to exist in other units."

2. Inspecting All Appliances

UWUA is effectively requiring SCG to inspect all gas appliances for even "unsatisfactory" connectors, not just "unacceptable" connectors as defined by the Consumer Products Safety Commission (CPSC).

UWUA suggests that even if the "cause of request" does not reveal an "unacceptable" connector, SCG should be required to complete inspection of all appliance connectors. As shown in the inspection rule provided above, SCG already requires SCG personnel to inspect all connectors at the premises whenever an "unacceptable" connector is encountered. UWUA is suggesting going beyond the CPSC standard.[82] To conduct inspections of all connectors while on a customer's premises may not be necessary and expensive. For example, in newer homes with newer appliances, UWUA's recommendation to inspect all connectors makes no sense, is wasteful and will not increase customer safety in a measurable manner.

[82] Ibid., pp. 4-6.

E. Customer Contact Center Level of Service ("LOS")

UWUA proposes to increase the target CCC LOS to 90% of total calls within 60 seconds while allowing a 270 seconds CSR average handle time. UWUA has estimated that 120 additional CSRs would be required with associated incremental annual costs of $8-11 million.[83,84] In contrast, SCG assumed a TY 2012 target LOS of 76% of total calls answered with 60 seconds and CSR average handle time of 231 seconds.

1. Achieving A 90% Level of Service is Unprecedented.

Even while under the penalty and reward Performance Based Regulation during 2005-2007, SCG did not achieve an overall 90% LOS. In fact, the highest LOS that SCG has ever achieved is 83.2% in 2007.[85] In addition, SCG analyzed the impact of LOS on customer satisfaction. Within the range of overall 70-83% LOS, customer satisfaction does not appear to be negatively impacted by decreases in LOS. In other words, increasing LOS from 71% to 90% clearly will not significantly increase, in aggregate, customer satisfaction.

//

//

//

---

[83] Exh. UWUA-5, p. 14 line 21 to p.15 line 6.
[84] Exh. UWUA-4, p. 8 lines 19-28 to p. 9 lines 1-10.
[85] SCG assumes that UWUA is proposing a 90% LOS for total calls, not 90% LOS for CSR answered calls. Overall LOS consists of CSR answered calls + IVR answered calls. 90% overall LOS translates to approximately 85% CSR LOS. UWUA reference to 71% LOS assumed in SCG workpapers refers to CSR LOS.

Table SCG-EF-22

Historical LOS & Customer Satisfaction Survey ("CSS") Results

Year	LOS	CSS Q.5 [1]	CSS Q.19 [2]
2005	82.6%	87.6%	93.2%
2006	81.7%	86.9%	92.8%
2007	83.2%	87.2%	92.3%
2008	77.4%	88.6%	93.0%
2009	76.0%	88.8%	93.4%
2010	**70.4%**	**88.2%**	**92.8%**
August YTD 2011	76.1%	87.8%	92.1%

[1] Question 5 - call experience satisfaction

[2] Question 19 - CSR call handling satisfaction

2. Average Handle Time ("AHT") For CSR Calls Is An Efficiency Measure That The Commission Expects SCG To Manage.

Prior to October 2009, SCG CSRs experienced and completed customer calls in approximately 231 seconds. An increase in AHT occurred after the implementation of replacement call center technology. Increasing AHT, as suggested by UWUA, when all else remains the same, means that CSRs are less efficient in handling customer calls. In other words, for the same customer call, CSRs are taking almost 40 seconds longer to complete the customer request (or 17% longer). SCG has not seen any evidence that suggests the mix of customer calls has changed in a manner that would justify a longer CSR AHT. Notably, UWUA has not offered any facts supporting an increase in CSR talk times from 231 seconds to 270 seconds for the same type of call (a 17% increase).

3. To Achieve 90% Overall Level Of Service At An Average Handle Time Of 270 Seconds, SCG Will Require Significantly More CCC Resources, But Less Than What UWUA Recommends.

SCG has completed preliminary analysis of UWUA's CCC proposal. If the Commission decides to adopt UWUA's recommended CCC 90% LOS standard and CSR efficiency standard of 270 seconds, SCG estimates that an approximate increase of 88 CSRs, 9 Lead CSRs and 6 supervisors will be required at approximately $6.6 million per year of direct costs.[86] See SCG-207-WP-CCC. SCG's expense estimates of UWUA's proposal assume SCG call volumes and other CCC assumptions per SCG's TY 2012 GRC request.

4. Increasing CCC Overall LOS To 90% Will Not Materially Improve SCG Response To Emergency (Gas Leak) Calls.

All customer emergency calls reporting gas leaks or gas odor are automatically moved to the front of the CSR queues for the next available qualified CSR. Regardless of the queue length (calls waiting), emergency calls always take precedent. SCG has typically targeted a service level of 90/20 for emergency calls. That is, 90% of emergency calls are answered with 20 seconds. Therefore, raising the general call LOS to 90/60 (90% of calls within 60 seconds) will not have a material effect on SCG CSR responsiveness to customer emergency calls. Even if CSR response time is improved by a few seconds, CSF response time would not be impacted. Emergency orders will still need to be dispatched to the nearest available CSF personnel. In most cases, CSF personnel will already be working on an order or driving to an order.

F. Branch Offices

UWUA recommends that every SCG branch office (47) be staffed with at least one Customer Contact Representative ("CCR"). UWUA states the following:

> "The Branch Office recommendation involves staffing each Branch Office with a Customer Contact Representative (CCR) who can provide the customer in person with the same type of service that a CSR can provide over the phone. Currently many Branch Offices will merely accept a customer's payment, without being able to make payment arrangements to avoid shutoff or preserve service, to schedule work orders, or to shape communication about appliance or odor problems that might indicate an emergency order. The customer is often directed to a telephone on the wall and directed to call the

[86] Estimated CCC incremental expenses do not include associated pension and benefits, payroll taxes, worker compensation and other loaders.

call center, where she has to wait in the queue for a call to be answered. This creates the same safety concerns as the extended wait on the phone described by Javier Salas."[87]

1. UWUA's Request To Staff Every SCG Branch Office With CCRs Is Unwarranted.

SCG currently has 47 branch offices staffed with 62 CCRs and 14 Lead CCRs. SCG branch office transactions are overwhelmingly customer payment transactions. Specifically, approximately 97% of all branch office customer transactions are payment transactions that do not require the higher level CCR job classification. In addition, as stated in my prepared direct testimony, branch office transactions are declining. No party has disputed this fact and trend. To staff branch offices with a higher pay job classification when CCR higher job skills are only required for 1-3% of the transactions makes no sense for customers overall. When a CCR is not available at a branch office, a customer can use the "ring-down" telephone to reach SCG CSRs at SCG's call centers. These CSRs can then process the customer order request or respond to other inquiries that branch office cashiers cannot address.

2. UWUA's safety concern is completely unwarranted and contrary to common sense.

If a customer has an emergency issue (gas leak), common sense will dictate that a customer would contact SCG immediately. It is very unlikely that a customer would drive, walk or take public transportation to a SCG branch office location to inform SCG of an emergency situation. Rather, the customer should call SCG's toll free CCC number. As explained above, emergency calls are automatically routed to the front of the queue and typically answered 90% of the time within 20 seconds. A customer, even in an emergency, is not likely to arrive at a SCG branch office in less time than a response from SCG's CCC CSRs.

[87] Exh. UWUA-2, p. 9 lines 3-12.

Accordingly, SCG does not recommend that the Commission adopt UWUA's proposal to staff SCG branch offices with CCRs and thereby increase branch office costs by an additional $2-2.5 million per year.[88]

G. Other UWUA Issues

UWUA raised several other non-GRC issues or made statements in their submitted testimony that warrants clarification. These clarifications do not have a direct or material impact on SCG's TY 2012 estimated expenses.

1. Exh. UWUA-7, witness Mr. Barber

a. Only A1 emergency orders have a goal of 30 minutes or less response requirement.

UWUA states that "(A)ll other types could fall into the 30-minute response requirement (A, B, C, D types)".[89] SCG's goal is to respond to A1 emergency orders within 30 minutes (during normal SCG business hours). All other non-A type orders (B, C and D order types) are subject to CSF local workforce availability.

b. CSF personnel are expected to complete their orders following Company policy, procedures and practices where the first priority is customer and employee safety.

UWUA witness Mr. Barber states that on a "soft close" order that

> "I am expected to complete this order in less than 4 minutes. This small time allowance increases the possibility that a step in the procedure might be skipped."[90]

---

[88] Exh. UWUA-4, p. 9 lines 12-16.
[89] Exh. UWUA-7, p. 2, lines 12-13.
[90] Ibid, p. 3, line 28 to p. 4 line 2.

"At the same time, SCG is constantly pushing employees to be more productive, in terms of completing as many orders as possible. To accomplish this SCG has developed a set of standard target times for completion of all order types, and evaluates employees based on their compliance with productivity expectations. The target times are generally not sufficient to accomplish the work according to procedure. For example, completing a turn-on or high bill investigation order may involve discovering a leak or other repairs that are required by new or standard company policy."[91]

All CSF order types are assigned employee specific standard time values for routing purposes and to measure efficiency. These labor standard times are developed using historical district specific averages and employee three-year average historical performance. Regardless of these time values, all employees are expected to follow policies, work safely and not "skip" procedures. All employees are assumed to be working orders per policy and expected to complete all required steps for any order and record the order start and completion time on their MDTs.

The "average" employee standard time means that some orders are completed less than the standard time and that other orders completed exceed the "average" standard time. More important, all SCG employees are expected to address observed hazardous or unsafe conditions regardless of average time standards. If significant extra time or additional assistance to address an unsafe or hazardous condition is required, the employee can contact his supervisor for further direction. In the event that the work required to complete the order is far greater than expected, the employee can inform CSF Dispatch of the extraordinary circumstances. Dispatch can then reprioritize and re-route the employee's pending orders.

The first priority on any CSF order is safety of the employee and customer. Employees are expected to adhere to policies and procedures. If an employee has questions or concerns regarding a hazardous situation, the employee is expected to contact their supervisor for

[91] Ibid, p. 9, lines 4-11.

direction. At no time is the employee expected to deviate from policy due to perceived time constraints or to avoid working over time.

c. UWUA overstates the purpose of the gas meter "registration" test when completing a soft close order.

UWUA witness Mr. Barber states the following describing the purpose of the registration test:

> "This test also ensures proper billing and reduced revenue loss and mis-billing for both the old and new customer."[92]

The purpose of the registration test is to confirm that normal pilot gas flow is occurring, and if not, further investigation is required. The gas meter is to be hard closed if entry into the premises is not possible. The registration test is not designed to assure billing accuracy or to prevent revenue loss.

d. SCG knows of no documented customer health and safety issues with SCG's order completion schedule.

UWUA implies that extended order completion schedules for gas turn-ons "can cause health and safety problems".[93] Furthermore, UWUA states that "one- or two-day completion of these orders is possible on a regular basis, particularly in the winter months".[94]

First, a primary reason for SCG's soft close policy is that gas does not need to be shut-off when a tenant moves out and a new tenant is expected to occupy the residence within a short period of time. The customer is inconvenienced when SCG must shut-off gas service for a

---

[92] Ibid, p. 6, lines 3-4.
[93] Ibid, p.7 line 5.
[94] Ibid, p. 7, lines 5-8.

temporary period of time when the unit is vacant because it then requires gas service to be turned back on when the unit is newly occupied.

If a customer is classified as a Medical Baseline customer or has been identified as one requiring gas service for health reasons, SCG's general policy is to avoid shut-off and to immediately turn-on or restore service if the customer indicates such a status.

e. Customers do schedule orders outside the SCG order completion schedule window for convenience.

Finally, UWUA's proposal of a two day window for order completion may not be reasonable. Customers may and do schedule appointments outside of SCG's OCS window for their convenience and to meet their schedule requirements. Completing all turn-on orders in the winter peak season (seasonal pilot lights and other appliance check orders) within the two day window may not only be undesirable to some customers, but may be costly to achieve.

f. Gas leaks upstream of the meter (SCG gas lines or distribution main) cannot be detected at the meter via CSF inspection of the meter or inspection of customer equipment/appliances.

UWUA implies that customer high bills may be generated by gas leaks on SCG gas service lines or distribution lines. UWUA witness Barber states:

> "High bills are generated by increased consumption, which could indicate yard-line or house line leakage or faulty equipment. Customers usually do not know why they have high consumption. Sometimes the cause is a defective thermostat or the pool heater thermostat might be on in error. Many times we have found leaks in a pool yard line. We just leave the gas off. Sometimes the leak is at the meter or the SCG service or main line." [95]

---

[95] Ibid, p. 7 line 27 to p. 8 line 4.

As a clarification to UWUA's above example, SCG will shut off gas service, in the event of a leak in a customer yard line to a pool heater. SCG will attempt to isolate the leak by means of an isolation valve or maybe even capping off the yard line (if possible). Leaks found upstream of the meter rarely, if at all, do not generate High Bill Investigations as these leaks would not show as consumption through the meter.

2. Exh. UWUA-4, witness Ms. Logan

a. Field Service Assistants ("FSA") can and do perform meter registration tests.

UWUA states the following:

> "FSAs cannot enter the home or do meter registrations."[96]

Although FSAs cannot enter the customer premises for appliance services, FSAs can perform meter registration checks. A meter registration check does not typically require entry into a customer's unit (home or apartment).

b. Energy Technician-Residential ("ETRs") do not and are not qualified to provide on-the-job training to other employees.

UWUA states the following:

> "ETRs are expected to provide "Technical assistance and on-the-job training to other employees."[97]

ETRs provide advice and technical assistance to other CSF employees in lower job classifications. Training is conducted through SCG's training department. ETRs are not certified CSF instructors.

---

[96] Exh. UWUA-4, p. 7, lines 12-13.
[97] Ibid, p. 7, lines 16-17.

IX. SUMMARY AND CONCLUSION

SCG has addressed almost all of the proposed disallowances presented by DRA and TURN. DRA provides few facts and analysis to justify their proposed disallowances. TURN has used flawed, selective, and inconsistent forecasting methodologies to derive their proposed disallowances. DRA's and TURN's proposed disallowances for SCG's TY 2012 CSF and CC estimated expenses should be rejected. Contrary to the approach taken by DRA and TURN, SCG TY 2012 estimated expenses for CSF and CC have been documented in prepared direct testimony, workpapers, rebuttal testimony and responses to data requests. Accordingly, SCG's estimated expenses for CSF and CC should be adopted.

UWUA has provided insight into several issues. However, UWUA proposals to raise customer service levels must be balanced with incremental expenses required to achieve higher levels of service.

This concludes my prepared rebuttal testimony.

ATTACHMENT A

INRIX National Traffic Scorecard-2010 Annual Report, March 2011

INRIX® National Traffic Scorecard
2010 Annual Report

Back on the Road to Gridlock

INRIX

THE LEADING PROVIDER OF TRAFFIC INFORMATION

SCG Doc#260049 EF-A1

INRIX® National Traffic Scorecard
2010 Annual Report

——— Back on the Road to Gridlock

March 2011

THE LEADING PROVIDER OF TRAFFIC INFORMATION

SCG Doc#260049 EF-A2

Executive Summary

Since its groundbreaking first publication in 2007, the INRIX National Traffic Scorecard Annual Report has analyzed and compared the status of traffic congestion throughout the top 100 metropolitan markets in the U.S. and the nation as a whole.[ES1] Last Fall, INRIX also introduced the Scorecard for major countries throughout Europe. Reviewed by regional departments of transportation, academics, the media, city planners, economists and everyday drivers, the INRIX Scorecard has become a trusted benchmark for understanding congestion and the impact of traffic in our major cities.

Drawing on five years of trend data, this 2010 Annual Report documents that after three years of relatively modest traffic congestion, America is now back on the road to gridlock with a vengeance. The data tells congestion is on its way back, even with only modest urban area job growth. And traffic is particularly worst in areas and specific locations where congestion levels remained elevated even at the deepest depths of the recession. Simply put, it appears that congestion in 2010 acted like a magnet—where it existed, it had a tendency to attract disproportionately more of it. This applies to both regions and specific roadways, where sharp increases in congestion were recorded. Absent a sudden and sustained fuel price shock, or the dreaded double dip recession or jobless recovery economic scenarios, congestion is poised to roar back—2010 shows that we are back on the road to gridlock.

Key Findings

- **The Nation's Travel Time Tax , a key indicator of traffic congestion, was 9.7% in 2010, up 11% from 2009, but still 27% off the 2007 peak.**
- **In 2010, 70 regions saw increased congestion vs. 2009, 41 regions exceeded their 2006 levels, 9 (mostly smaller areas) exceeded their 2007 levels and are the highest yet recorded.**
- **When employment returns to 2007 levels, 9 MILLION more daily commute trips than 2010 levels will need to be accomodated, further stressing America's urban highway network.**
- **All congestion is not created equal: The nation's worst travel corridors can cost their users more than 80 hours of annual delay in the evening peak period alone.**
- **Los Angeles area's freeway system is more congested than that of any other city in the United States, Great Britain, France, Germany, Belgium and the Netherlands, by all measures.**

[ES1] All Annual Reports and Special Reports are available at http://scorecard.inrix.com.

Executive Summary

INRIX's initial 2007 Scorecard was revolutionary, demonstrating that GPS-based probe vehicle data can provide a comprehensive, consistent and timely measure of traffic congestion nationwide. The 2008 Annual Report documented the dramatic 30%+ plunge in congestion from 2007 caused by 2008's skyrocketing fuel prices and the economic downturn. The 2009 Annual Report showed that drop in congestion had ended and seemed to "reset" to 2004/2005 levels and further concluded that "what happens in 2010 and beyond to congestion will largely be shaped by the rate and pace of economic recovery, in particular the rate—or lack thereof—of job growth." This theme of job growth and its impact is a major focus of this 2010 Annual Report.

Leveraging tens of billions of data points collected and archived by the INRIX Smart Driver Network, the Scorecard publishes the most up-to-date information regarding overall congestion and specific bottlenecks on the major roadways across America. By analyzing nearly 50,000 road segments totaling more than 110,000 miles of the major highways nationwide, with a special focus on the nation's 100 largest metropolitan areas, the Scorecard informs the ongoing debate of one of the nation's most frustrating and intractable issues: traffic congestion.

The U.S. Economy's Mixed Signals—Particularly for Urban America

In the Introduction section of this Annual Report, 12-month rolling averages are provided for monthly national employment levels and urban interstate traffic volumes, and weekly U.S. gas prices. All show increases in 2010 as compared to 2009. This is consistent with the 11% increase in the nation's travel time tax, from 8.7% to 9.7%. However, the data that rolls up into these national figures tell a more interesting and nuanced story. Table ES-1 shows year-to-year changes in several key statistics, each based on data from the appropriate federal agency. Also, comparisons are made in each between 2010 and 2007, the peak year in all statistics, including the highest level of congestion recorded to date.

Category for Year-to-Year Change	2006 to 2007		2007 to 2008		2008 to 2009		2009 to 2010		2007 to 2010	
	Change	%	Change	%	Change	%	Change	%	Change	%
Entire United States										
Population (In Thousands of People)	2,962	1.0%	2,784	0.9%	2,479	0.8%	2,395	0.8%	7,657	2.5%
Gross Domestic Product (in Billions of $s)	$663	4.9%	$307	2.2%	-$250.10	-1.7%	$539	3.8%	$596	4.2%
Nonfarm Employed (In Thousands of People)	1,078	0.8%	-3623	-2.6%	-4740	-3.5%	1,124	0.9%	-7239	-5.2%
Average Annual Fuel Price (In $'s)	$0.22	8.7%	$0.45	16.1%	-$0.89	-27.5%	$0.43	18.2%	-$0.02	-0.6%
In "Top 100" Areas (or Urban Focused)										
Population (In Thousands of People)	1,725	0.9%	1,782	0.9%	1,898	1.0%	2,322	1.2%	6,002	3.1%
Nonfarm Employed (In Thousands of People)	744	0.8%	-2100	-2.2%	-4203	-4.6%	152	0.2%	-6151	-6.5%
Urban Interstates Traffic Volume (Billions of Miles)	6.0	1.3%	-14.5	-3.0%	8.8	1.9%	4.3	0.9%	-1.4	-0.3%
INRIX Scorecard Travel Time Tax (%)	2.2%	19.8%	-4.6%	-34.5%	0.0%	0.2%	1.0%	11.0%	-3.6%	-27.1%

Table ES-1: *Annual Changes in Major Economic and Traffic Data*

Executive Summary

- **Fuel Prices:** Fuel prices rose consistently from the beginning of the year from the $2.60's/gallon to roughly $3/gallon in 2010. The average gallon price rose 43 cents from $2.35 in 2009 to $2.78 in 2010, an 18% increase. For the first time in several years, fuel price volatility was largely a non-story in 2010, though ongoing events in the Middle East might end this quiet period in 2011. But without any price shocks, it is safe to say that overall demand was not significantly impacted by fuel prices in 2010.

- **Traffic Volumes:** Travel on roadways classified as "Urban Interstates" by the Federal Highway Administration —the roads that most closely align with the roads analyzed in the Scorecard—rose about 1% from 2009 and is nearing 2007 volumes, the highest ever recorded. Without shocks to the economy and/or fuel prices in 2011, volumes appear on the trajectory to be back to setting records in 2011.

- **Jobs and Population:** Total employment in the U.S. increased by nearly 1.25 million jobs in 2010, roughly a 1% increase over 2009. Still, from its 2007 peak, over 5% fewer people are employed, a net drop of 7.24M jobs nationwide. Jobs appear to be rebounding, though at a modest pace so far. However, employment in the 100 largest metropolitan areas tells a bleaker story—only 150,000 jobs were added in these areas in 2010, a scant 0.2% increase—and these regions are down 6.15 million jobs collectively from the 2007 peak. Roughly 65% of America lives in these top 100 areas; areas which have suffered 85% of the nation's total net job losses. In the meantime, since the 2007 peak, total U.S. population has increased by 7.6 million, with 6 million of the increase in the top 100 areas. Since 2007, 6 million more people and 6 million less jobs—that is the situation in urban America heading into 2011.

- **Gross Domestic Product**: In total annual figures, only one year—2008—shows a decline in real GDP. In 2010, the economy grew 4% and has increased overall by 4.2%, nearly $600 billion, since 2007. "Goods" imports and exports—both of which impact the transportation system—grew roughly 20% in 2010, a collective increase of $575 billion and nearly to the 2008 record of $3.39 trillion. [ES2] In overall economic output, we are at record levels.

National Congestion Results and Trends

In 2010, the nation's Travel Time Tax (T^3)[ES3] was 9.7%. This means that during peak driving times[ES4] a random traveler on a random trip on the roads analyzed in the 100 largest region's in the U.S. took an average 9.7% extra time than if there was no congestion. 2010's T^3 is an 11% increase from 2009's T^3 of 8.7%, but still 27% below 2007

[ES2] http://www.census.gov/foreign-trade/Press-Release/current_press_release/ft900.pdf

[ES3] INRIX introduced the Travel Time Tax as a variant of the Travel Time Index (TTI) in the 2009 Annual Report. The Travel Time Tax, or T^3, takes the portion of the TTI above 1.00 and turns it into a percentage. For example, a TTI of 1.25 equates to a T^3 of 25%. Much like a sales tax, T^3 can be considered that additional cost of travel above the uncongested conditions. Throughout the report, T^3 is being utilized where TTI was utilized prior to the 2009 Annual Report.

[ES4] Peak period drive time hours are 6–10 AM and 3–7 PM, Monday through Friday.

Executive Summary

and 13% below 2006 levels. Figure ES-1 shows the nation's annual Travel Time Tax from 2006 to 2009, and shows that 2009's T^3 is 1/3 less than 2007 and more than 20% less than 2006, the first year reported in the Scorecard series.

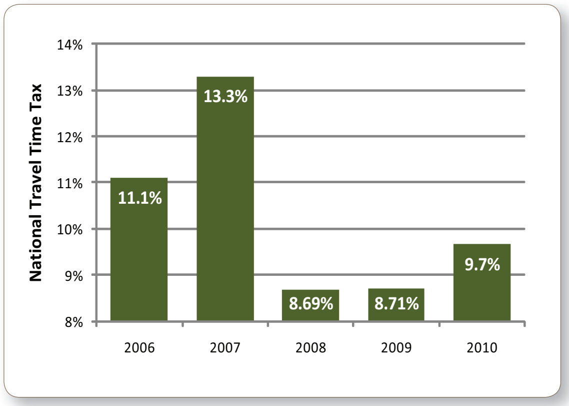


Figure ES-1: *National Travel Time Tax (T^3) by Year*

There are several interesting stories within the national number:

- The nation's monthly T^3 was consistent as compared to 2009 for the last 11 months of 2010; only January, impacted by severe winter weather saw less congestion that 2009.
- The morning peak period T^3 was 7.7%, much less than the evening peak period T^3 of 11.7%—nearly all regions of the country mirrored this trend, where the morning commute is significantly lower than the afternoon commute.
- Monday had the highest morning peak period T^3 rise at 1%, while Thursday had the highest evening peak period T^3 increase at 1.1%; Monday 7–8 am had the largest hourly T^3 increase at 1.6%.
- Tuesday replaced Wednesday as the busiest morning peak period, and Friday remained the busiest evening peak period.
- Friday from 5 to 6 PM remained America's most congested hour of the week, with a T^3 of 19.9%, up 1% from 2009.
- Each weekday morning, overall national congestion peaks between 7:45 to 8:00 AM.
- Overall national evening congestion peaks between 5:30 and 5:45 PM Monday through Wednesday and between 5:15 and 5:30 PM on Thursday and Friday.
- Congestion was higher every hour of the week compared to 2009, except for a small decrease on Saturday evenings.
- Weeknight overnight hours saw a consistent increase in T^3 of about 1%, signaling a continued increase in work zone related slowdowns. This data provides a sure sign that stimulus projects are still being measured.

Metropolitan Comparisons and Trends

70 of the 100 regions saw an increase in congestion in 2010 from 2009, and in contrast to 2009, when 58 regions showed increases compared to 2008. with larger, more congested areas saw larger increases than the less populated/congested regions. 41 of the 100 areas have congestion levels in 2009 that were equal to or greater than 2006 levels (up from 25 in 2009), and 9 areas at higher than their 2007 levels (compared to none last year).

Executive Summary

Rank	Area (Pop Rank)	% of Worst Market*	Rank Change from 2009
1	Los Angeles-Long Beach-Santa Ana CA (2)	100%	0
2	New York-Northern New Jersey-Long Island NY-NJ-PA (1)	99%	0
3	Chicago-Naperville-Joliet IL-IN-WI (3)	42%	0
4	Washington-Arlington-Alexandria DC-VA-MD-WV (8)	40%	0
5	Dallas-Fort Worth-Arlington TX (4)	36%	0
6	San Francisco-Oakland-Fremont CA (13)	35%	+1
7	Houston-Sugar Land-Baytown TX (6)	32%	-1
8	Boston-Cambridge-Quincy MA-NH (10)	26%	0
9	Philadelphia-Camden-Wilmington PA-NJ-DE-MD (5)	23%	+1
10	Seattle-Tacoma-Bellevue WA (15)	23%	-1

*** % Compared to Worst Market (Los Angeles Region)**

Table ES-2: *Top Ten Ranking, Overall Congestion 2010*

Rank	Area (Pop Rank)	Travel Time Tax (%)	Rank Change from 2009
1	Los Angeles-Long Beach-Santa Ana CA (2)	35.4%	0
2	Honolulu HI (55)	32.8%	0
3	San Francisco-Oakland-Fremont CA (13)	26.0%	-1
4	Washington-Arlington-Alexandria DC-VA-MD-WV (8)	24.0%	+1
5	New York-Northern New Jersey-Long Island NY-NJ-PA (1)	23.1%	-1
6	Austin-Round Rock TX (35)	22.4%	+1
7	Bridgeport-Stamford-Norwalk CT (56)	22.3%	-1
8	Seattle-Tacoma-Bellevue WA (15)	19.8%	+1
9	San Jose-Sunnyvale-Santa Clara CA (31)	18.5%	-1
10	Chicago-Naperville-Joliet IL-IN-WI (3)	16.7%	+1

Table ES-3: *Top Ten Ranking, Travel Time Tax (T^3)*

Tables ES-2 and ES-3 show the nation's ten most congested cities, by overall congestion and also by Travel Time Tax.[ES5] The top ten overall congested remained the same in 2010. San Francisco and Houston exchanged 6th and 7th places, with San Francisco moving up. Philadelphia and Seattle exchanged 9th and 10th places, with Philadelphia moving up. Note that New York has moved nearly even with Los Angeles for the top overall congestion rank— if 2010 trends continue into 2011, New York would pass Los Angeles. Of the 33 most congested regions, only three regions saw declines in congestion—Chicago a small 1% drop, Miami (9%) and Phoenix (12%). In total, these 33 regions together account for more than 82% of the overall peak period congestion—congestion is clearly on the rebound in larger areas.

Los Angeles increased its lead on Honolulu with the nation's highest peak period Travel Time Tax of 35.4%. 2009's top ten all stayed in the top ten in 2010, although several moved up or down one rank. The largest drop near the top ten was Miami, from 12th in 2009 to 22nd in 2010. Only three of the top 38 saw declines in their T^3 from 2009 to 2010—Chicago, Miami and Baton Rouge.

With five years of data, longer term trends can be analyzed. Table ES-4 shows the ten largest absolute drops in T^3 from 2006 to 2010. Common themes of this list are struggling economies and/or complete major road construction (as is the case in Ogden, Utah). Clearly, drops in employment levels are the common denominator for this list. Of the five regions with the biggest absolute drop in congestion from 2006 to 2010, only Seattle had a below average loss in jobs (3.5% drop), while the others—Los Angeles, Riverside, Miami and Cape Coral/Ft.

[ES5] As described in detail in the Report, Overall Congestion is analogous to overall power usage in a region, with the Travel Time Tax being analogous to power usage per home. One metric is system-centric, the other is user-centric.

Executive Summary

Myers—had net job loss ranging from 9.2% to 10.5%.[ES6] Seattle appears to be an interesting case where a combination of strategic construction projects and aggressive operations of the network are yielding improvements while the economy is struggling only modestly compared to its peers.

Rank	Area (Pop Rank)	2006 Travel Time Tax (%)	2010 Travel Time Tax (%)	Absolute Change	% Change
1	Miami-Fort Lauderdale-Pompano Beach FL (7)	21.7%	11.3%	-10.5%	-48
2	Cape Coral-Fort Myers FL (86)	10.6%	1.0%	-9.6%	-90
3	Seattle-Tacoma-Bellevue WA (15)	29.0%	19.8%	-9.2%	-32
4	Riverside-San Bernardino-Ontario CA (14)	20.0%	11.0%	-9.1%	-45
5	Los Angeles-Long Beach-Santa Ana CA (2)	43.7%	35.4%	-8.3%	-19
6	Ogden-Clearfield UT (93)	9.7%	2.3%	-7.3%	-76
7	Atlanta-Sandy Springs-Marietta GA (9)	18.7%	11.6%	-7.0%	-38
8	Jacksonville FL (40)	9.3%	2.8%	-6.5%	-70
9	Honolulu HI (55)	38.9%	32.8%	-6.1%	-16
10	Tampa-St. Petersburg-Clearwater FL (19)	11.9%	5.9%	-6.0%	-50

Table ES-4: *Largest Drop in Travel Time Tax (T^3), 2006 to 2010*

Congested Corridors and Bottlenecks

From the initial Scorecard, INRIX has analyzed road segments in detail to determine the specific location of chronic congestion on the major highways of the United States. This Annual Report continues to analyze these "bottlenecks" while adding an important new advance—turning adjacent congested road segments into "congested corridors."

Figure ES-2: *Nation's Congested Corridors (in Red) and Worst Bottlenecks (in Yellow) for 2010*

This allows for direct comparisons between corridors in terms of travel time delays—providing a direct measurement of the most tangible and frustrating impact of bottlenecks. INRIX continues to analyze essentially the nation's entire limited access road network, in more than 48,000 unique segments spanning more than 110,000 miles. Figure ES-2 shows the roads analyzed, with the nation's congested corridors in red and smaller non-corridor bottlenecks in yellow.

[ES6] The Metropolitan Rankings section includes significantly more detail on the jobs/traffic link, as does each region's summary report in Appendix A.

Executive Summary

Nation's Most Congested Corridors

In total, there were 341 congested corridors nationwide in 2010, a collective 2,295 miles in length. On average, these corridors were 6.7 miles in length, took 15 minutes in their peak period with 8 minutes of delay (a T^3 of 113%); in their worst hours, these corridors took 21 minutes to traverse with 14 minutes of delay (a T^3 of 224%). Like overall congestion, most of these corridors are located in the largest, most congested cities, with 29 of the 50 worst corridors located in Los Angeles, New York and Chicago. These 50 corridors—ranked by a combination of total delay and T^3 in their peak period—averaged 9.5 miles in length, took 30 minutes to traverse in their peak periods (20 minutes of delay, a T^3 of 196%), and at their worst took a whopping 45 minute travel time on average (35 minutes of delay, a T^3 of 341%). To put it in perspective, 20 minutes of daily delay translates to 80 hours of annual of delay—for one-half of a commute—for a very realistic 48 weeks of annual commuting.

National Rank	CBSA (Pop Rank)	Road(s)	From	To	Corridor Length (Miles)	Free Flow Travel Time (Mins)	Peak Period			
							Worst Peak	Travel Time (Mins)	Delay (Mins)	Travel Time Tax (%)
1	New York (1)	I-95 SB (NE Thwy, Bruckner/Cross Bronx Expys)	CONNER ST/EXIT 13	HUDSON TER	11.3	13	PM	43	**30**	**231%**
2	Los Angeles (2)/Riverside (14)	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	20	PM	57	**37**	**183%**
3	Los Angeles (2)	San Diego Fwy/I-405 NB	I-105/IMPERIAL HWY	GETTY CENTER DR	13.1	13	PM	41	**28**	**224%**
4	Chicago (3)	I-90/I-94 EB (Kennedy/Dan Ryan Expys)	I-294/TRI STATE TOLLWAY	RUBLE ST/EXIT 52B	15.9	17	PM	49	**32**	**195%**
5	Los Angeles (2)	Santa Monica Fwy/I-10 EB	CA-1/LINCOLN BLVD/EXIT 1B	ALAMEDA ST	14.9	14	PM	42	**28**	**192%**
6	New York (1)	Long Island Expy/I-495 EB	MAURICE AVE/EXIT 18	MINEOLA AVE/WILLIS AVE/EXIT 37	16.0	16	PM	45	**29**	**176%**
7	Los Angeles (2)	I-5 SB (Santa Ana/Golden St Fwys)	EAST CEASAR CHAVEZ AVE	VALLEY VIEW AVE	17.5	18	PM	47	**30**	**167%**
8	New York (1)	I-278 WB (Brooklyn Queens/Gowanus Expy)	NY-25A/NORTHERN BLVD/EXIT 41	NY-27/PROSPECT EXPY/EXIT 24	10.2	12	PM	37	**24**	**197%**
9	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	LYDIA ST/EXIT 2	US-19 TK RT/PA-51/EXIT 5	3.4	4	AM	17	**13**	**348%**
10	Los Angeles (2)	San Bernadino Fwy/I-10 EB	CITY TERRACE DR/HERBERT AVE	BALDWIN PARK BLVD	12.8	13	PM	37	**24**	**188%**
11	Chicago (3)	I-90/I-94 WB (Dan Ryan/Kennedy Expys)	PERSHING RD/EXIT 55B	SAYRE AVE/EXIT 81B	15.4	16	PM	43	**27**	**167%**
12	Los Angeles (2)	San Diego Fwy/I-405 SB	NORDHOFF ST	MULHOLLAND DR	8.1	8	AM	26	**18**	**225%**
13	New York (1)	Van Wyck Expy/I-678 SB	HORACE HARDING EXPY/EXIT 12A	LINDEN BLVD/EXIT 3	6.2	7	PM	24	**17**	**242%**
14	Washington, DC (8)	I-95 SB	I-395	RUSSELL RD/EXIT 148	23.9	23	PM	52	**29**	**129%**
15	Chicago (3)	Eisenhower Expy/I-290 EB	IL-72/HIGGINS RD/EXIT 1	AUSTIN BLVD/EXIT 23A	21.5	22	PM	51	**28**	**127%**
16	Los Angeles (2)	Pomona Fwy/CA-60 EB	WHITTIER BLVD	BREA CANYON RD	21.7	22	PM	50	**28**	**128%**
17	Austin (35)	I-35 SB	US-183/EXIT 239-240	WOODLAND AVE	6.7	7	PM	22	**15**	**226%**
18	Baton Rouge (66)	I-12 EB	ESSEN LN	O'NEAL LN	5.8	6	PM	20	**14**	**243%**
19	Washington, DC (8)	Capital Beltway/I-495 Inner Loop	I-95/I-395/EXIT 57	MD-650/NEW HAMPSHIRE AVE/EXIT28	20.7	20	PM	47	**26**	**129%**
20	Boston (10)	Southeast Expy/I-93 NB	MA-28/RANDOLPH AVE/EXIT 5	COLUMBIA RD/EXIT 15	10.4	10	AM	29	**19**	**179%**
21	Portland, OR (23)	I-5 NB	CORBETT AVE/EXIT 298	N TOMAHAWK ISLAND DR/EXIT 308	10.1	11	PM	30	**19**	**174%**
22	New York (1)	Van Wyck Expy/I-678 NB	BELT PKWY/EXIT 1	MAIN ST/EXIT 8	3.1	3	PM	13	**10**	**298%**
23	Chicago (3)	Stevenson Expy/I-55 SB	STATE ST/EXIT 293C	PULASKI RD/EXIT 287	5.7	6	PM	19	**13**	**225%**
24	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 WB	US-22 BUS/EXIT 10	SQUIRREL HILL TUNL	5.3	6	AM	19	**13**	**223%**
25	New York (1)	Long Island Expy/I-495 WB	GLEN COVE RD/EXIT 39	WOODHAVEN BLVD	14.9	15	AM	35	**20**	**137%**

Table ES-5: *Top 25 Congested Corridors, 2010*

Nation's Worst Bottlenecks

A central theme of this year's bottleneck analysis is that if congestion is up on America's main roads in 2010, it is WAY UP in its most congested spots. Overall, the Top 100 bottlenecks had a length-weighted

Executive Summary

average of more than 78 hours of weekly congestion each week, up 39% from 2009 (58 hours) and by far the highest level recorded. The nation's worst bottleneck has remained unchanged since 2007: The Cross Bronx Expressway/I-95 SB in the Bronx leading up to and including the Bronx River Parkway exit 4B interchange. This 0.35 miles long segment was congested an astounding 116 hours each week on average (more than 16 hours each day of the week!), with an average speed of just 11.3 MPH during those 116 hours. In 2009, this bottleneck was congested "only" 94 hours of the week, with an average speed of 11.4 in those hours. Big increases in duration of congestion from 2009 to 2010 is consistent for the top bottlenecks, in most cases, these are the worst levels of congestion since the scorecard began, topping even the overall peak congestion year of 2007.

Miles congested at least five hours or more was up significantly in 2010 as compared to 2009. Interestingly, while fewer miles of roads were congested below 20 hours a week than the peak levels of 2007, more miles of road are congested 20 hours a week or more than any previous year. Over 500 miles of roads were congested 25 hours a week in 2010 and nearly 200 of those miles were congested 40 hours a week. Congestion has snapped back quicker to bottlenecks that were already congested.

Long Haul Freight Movement

As first done in 2009, the subset of GPS vehicle probe data from 2010 attributed to commercial vehicles focused on long haul freight movement has been separated from INRIX's full archive to present a timely picture on national freight movement via highways. While the distribution of samples may not precisely match the movement of all long haul vehicles nationwide, with INRIX's billions of data points and sources nationwide, this is the most extensive, consistent, and current analysis to date on national freight activity.

Figure ES-3 illustrates that the nation's truck freight network is highly interconnected, with some of its most important links—I-44 through Missouri, I-40 through Arkansas and I-70 through Indiana for example—located in places that aren't immediately obvious (except to fleets and people traveling those roads). Nationwide, just 5% of road miles have four times or more the average density of freight data, and less than 1% of road miles have five times or more.

In 2009, 45% of the freight vehicle data volume analyzed was located in the top 100 markets—roughly in proportion to the total road miles analyzed located in these regions (43%). Thus, an important conclusion from the data is that long haul freight activity is proportional in urban and inter-urban areas; it is not a rural or urban issue—it affects both roughly the same. Long-haul freight is an urban AND rural issue—in addition to a national economic competitiveness issue.

Executive Summary

Figure ES-3: National Freight Density Map

The analysis also highlights the importance of "crossroads cities" and "crossroads states" to the freight network. Nine of the top 10 metropolitan areas ranked for freight density are at the intersection of two or more interstates (Austin is the only one that doesn't, but it has some of the most dense freight movement in the country along I-35). In addition, all of the top ten states in terms of freight density are critical to movement along east-west or north-south corridors, and in most cases, both. Tables ES-6 and ES-7 show the top 10 metropolitan areas and states in terms of freight density per mile.

Rank (Activity/Mile)	Area (Pop Rank)	Activity/Mile Compared to Average	Rank of Overall Activity
1	Chattanooga TN-GA (98)	282%	28
2	Indianapolis-Carmel IN (34)	258%	7
3	Knoxville TN (73)	257%	30
4	Austin-Round Rock TX (35)	240%	33
5	Nashville-Davidson--Murfreesboro--Franklin TN (38)	222%	8
6	Atlanta-Sandy Springs-Marietta GA (9)	195%	4
7	Chicago-Naperville-Joliet IL-IN-WI (3)	194%	1
8	Columbus OH (32)	190%	11
9	Harrisburg-Carlisle PA (96)	189%	23
10	Dayton OH (61)	184%	26

Table ES-6: Top Metropolitan Areas for Freight Density, 2010

Rank (Activity/Mile)	State (Pop Rank)	Activity/Mile Compared to Average	Rank of Overall Activity
1	Tennessee (17)	222%	7
2	Nebraska (38)	218%	22
3	Indiana (16)	208%	6
4	Arkansas (32)	203%	12
5	Georgia (9)	174%	9
6	Missouri (18)	159%	8
7	Kentucky (26)	156%	15
8	Pennsylvania (6)	155%	4
9	Illinois (5)	152%	3
10	Virginia (12)	149%	10

Table ES-7: Top States for Freight Density, 2010

Executive Summary

313 of America's 341 congested corridors carry long haul freight as well (the rest are parkways or located in Hawaii). 82 of these 313 have above average freight usage across their entire length. Some, like the Borman Expressway in northwest Indiana are strategic, and congested, freight corridors—in this case over eight times the national average of long haul freight moves across the entire 6.7 mile length of the nation's 154^{th} most congested corridor.

International Comparisons

In November 2010, INRIX published Traffic Scorecards for six western European countries—Great Britain, France, Germany, Belgium, the Netherlands and Luxembourg—in four separate reports.[ES7] Since these reports used identical methodologies as used in the U.S. reports, it is now possible to compare congestion levels between metropolitan areas in all seven countries. Table ES-8 provides country level comparisons. In total, the 100 U.S. areas analyzed have about 10% more overall peak hour congestion than the 109 areas analyzed in Europe. This is due primarily to a major highway network more than twice as large in U.S. cities, which serves over 80 million more people. But from a Travel Time Tax perspective, Europe has twice the delay intensity than the United States. So from a driver's perspective, the U.S. as a whole has half the congestion of these European countries.

Region	CBSAs/LUZs Analyzed	Pop (000)	Road Miles Analyzed	Travel Time Tax (%)	% of Total Peak Congestion vs. US
United States	**100**	**201,502**	**46,266**	**9.1%**	**NA**
6 EU Countries Total	**109**	**113,671**	**20,125**	**18.9%**	**90.3%**
Germany	*35*	*41,508*	*7,601*	*19.7%*	*35.6%*
Great Britain	*25*	*34,022*	*4,231*	*22.5%*	*22.7%*
France	*27*	*26,501*	*5,896*	*14.3%*	*20.0%*
Benelux (Belguim, The Netherlands, Luxembourg)	*22*	*11,640*	*2,397*	*21.1%*	*12.1%*

Table ES-8: *Country Level Congestion Comparisons, August 2009 to July 2010*

In terms of overall congestion, fifteen of the Top 25 are American areas, with Paris the only non-U.S. region in the Top 5. When ranked in terms of Travel Time Tax, only two U.S. areas—Los Angeles and Honolulu—crack the Top 25. The T^3 rankings are clear demonstration that Europeans have to fight harder to utilize the smaller highway network.

But…all regions take a back seat to Los Angeles, by any measure. Even though congestion is over 20% lower than the peak year of 2007 in the L.A. area, it is still worse than cities such as Paris, London and Brussels. Congratulations Los Angeles—even when adding most of Western Europe, those of you that use the freeways to get around town—you still take the cake!

[ES7] http://euscorecard.inrix.com

Executive Summary

Conclusions

In 2009, the Scorecard showed that, congestion— like the economy—stabilized…and reset. We predicted that the key factor for congestion growth was job growth and "what happens in 2010 and beyond to congestion will largely be shaped by the rate and pace of economic recovery, in particular the rate – or lack thereof – of job growth." So what does 2010 tell us?

Looking forward, the Scorecard leads to several conclusions and identifies issues to watch:

- **We are (back) on the road to gridlock...but not for everyone, everywhere.** In 2010, the major cities of America only saw the return of 150,000 of the more than 6 million jobs lost in the recession since 2007. Still, this 0.2% net increase coincided with an 11% increase in congestion. In the meantime, population in these areas has increased since 2007 by 6 million people to over 200 million. If and when employment returns just to 2007 levels, with an estimate from the U.S. census that 75% of people drive to their jobs alone (another 11% share a ride), the 6 million jobs would translate into 9 MILLION extra daily work trips that need to be accommodated by the urban highway network. Obviously where the jobs are created will have a bearing on their impact on congestion, but suffice to say that millions more people employed, millions more people in metropolitan areas, and continued increases in imports and exports will ensure that a byproduct of the job creating economic recovery we all are desperately hoping for is record levels of congestion.
- **Congestion is acting like a magnet—attracting more congestion.** Back in 2007, Washington State DOT showed with rice and a funnel that optimizing throughput is the key to avoiding congestion.[ES8] The data in 2010 illustrate clearly that the corridors where traffic breaks down are the first to feel the increases in demand that comes with a growing economy. We fully expect—should growth continue and particularly if job growth picks up—to see congested corridors get longer in length, have delays more hours of each day, and see slower traffic while congested. This triple whammy of longer (length), longer (time), and slower is likely to be the primary contributor to congestion growth in 2011, as it appears to have been in 2010.
- **Freight mobility is a national issue, and an increasingly important issue.** Over the past several years, murmurs have turned into shouts of near universal agreement of the need for national freight policies—after all, facilitating interstate commerce is one of the key clauses in the Constitution and a primary reason, if not THE primary reason, for federal involvement in surface transportation. International goods trade rose more than 20% last year to just below their record levels of 2008. President Obama has declared as a national goal to double exports by 2015. If successful, this will increase the strain on the nation's highway system. As the data

[ES8] http://www.youtube.com/watch?v=8G7ViTTuwno

Executive Summary

shows, this strain is not evenly placed across the network. Several key corridors traverse multiple states and their ability to support freight movement is a strategic issue for the nation…and only increasing in relevance with time. Many of these corridors also frequently appear on the most congested corridor list. We must treat key corridors like the national asset they are.

- **If we want to "win the future," we need to address congested corridors.** Horror stories like the Big Dig in Boston or the 20-year plus saga to replace the Bay Bridge in San Francisco show this may be the most difficult time ever to target persistent congestion locations. And that doesn't even include the complications added by the fact that resources for transportation investment are clearly inadequate and the gap between basic needs and ability to fund is growing quickly. Whatever the solutions may be—extra capacity, active traffic management, toll express lanes, transit alternatives, or creative ideas not yet thought of that shift just enough traffic from peak days/times/locations to break the gridlock—we will not unclog America's key roads by adding lane miles in the far outlying suburbs or improving pavement quality. People are adaptable and creative (after all, few people actually try to get stuck in traffic), but the data shows that a floundering economy and creative people still had to deal with 2,300 miles of corridors in 2010 that were consistently congested. Efforts like the I-95 Express Lanes in South Florida, the HOT Lanes under construction by a private consortium along the Capital Beltway outside Washington, DC in Virginia, or the active traffic management system including variable speed limits recently installed along I-5 near Seattle are making an impact. But the current efforts are few and far between to move the needle nationally. People can debate each corridor on a case-by-case basis to determine whether fixing it is a national issue, but certainly giving states and regions the tools to fix corridors on their own if federal resources and programs won't or can't is imperative.

- **Operating the system is the biggest force multiplier available to impact full network performance.** Of the more than 46,000 road miles analyzed in 2010, about 3,400 miles averaged one hour or more of congestion each weekday in 2010. This means that less than 10% of the nation's urban limited access highways suffered from recurring congestion (the peak in 2007 was still under 10%). Of course, congestion isn't limited to just these locations. Accidents, work zones, bad weather, special events are just a few of the reasons that congestion can pop up anywhere at any time on the network. In addition to minimizing the pain associated with these corridors and bottlenecks, addressing the "other 90%" of roads—and the unpredictable congestion that occurs—is the function of "operations." Operations is the mix of activities from monitoring and managing traffic (including active tools such as ramp meters, variable speed limits, and congestion pricing), detecting and responding to unplanned incidents to minimize their impact on

Executive Summary

traffic flow, managing traffic around special events, work zones and evacuations, aggressively maintaining roads in bad weather, and communicating available information to the traveling public so people and freight operators can minimize exposure to congested or unsafe conditions. Unfortunately, many of these programs—instead of increasing their scope and effectiveness—are proving to be fodder for cuts in these tight budget times. Interstates alone—though a fraction of the nation's overall network—carry 24% of the traffic volumes in both urban and rural America. Operations is key to the performance of the interstate and well organized and executed operations programs can obviate the perceived need for major capital improvements on most of the network. Operations is a money saver—not a cash drain.

Table of Contents

Introduction

INRIX has published several reports in the groundbreaking INRIX National Traffic Scorecard series.[1] Leveraging the nation's most comprehensive and longest running historical traffic data warehouse, INRIX has been monitoring these changes in patterns in detail since 2006. This is the Annual Report for the full year of 2010, and is the 4th Annual Report for the United States. This 2010 Annual Report builds on the themes and findings of the previous Annual Reports:

— The initial 2007 Annual Report demonstrated that consistent nationwide measurement of congestion is possible. From this launch report, INRIX now has the longest running series of reports available documenting precisely when and where congestion is occurring across the United States.

— The 2008 Annual Report documented the impact of the deep recession on traffic and underscored how modest drops in traffic volumes led to 30% reductions in overall congestion.

— The 2009 Annual Report highlighted the full impact of the recession and showed that stabilization—though uneven around the country—was occurring, and that the recession "reset the clock" to 2004/2005 in terms of congestion levels. The report also predicted what happens next depends primarily on what happens to total employment levels. These themes play heavily in this report.

INRIX's five-year traffic archive spans a very consequential period. The initial year of 2006 was the last uniformly "good" year for the U.S. economy as a whole. The deep recession began in 2007 and ended sometime in 2009, with the exact timing and depth varying greatly by region across the U.S. The real estate meltdown, fuel price spikes, and the financial crises affected regions different times and in different ways.

2010 data shows this is "unevenness" is still evident across the country. While the nation's economy grew roughly 3% in 2010, the jobs data and traffic data in this report show the recovery is not uniform across the country. Congestion is springing back in many places in the U.S.—more the 10% in total from 2009. But where and how congestion is returning highlights many important issues for policymakers and transportation professionals as recovery continues. This Scorecard focuses on the five year and one year trends to highlight these issues. We are back on the on-ramp to gridlock in America—how do we respond to these facts?

Macroeconomic Data Show the "Congestion Reset" has Ended

While population and demographic trends are long-term drivers of transportation patterns, In the short-term, economic activity and the price of fuel are the most important factors driving changes in overall congestion

[1] To download this and previous reports, see http://scorecard.inrix.com.

Introduction

and delays. Figures 1, 2 and 3 show twelve month rolling averages of nationwide fuel prices, total non-farm employment, and vehicle miles traveled on urban interstates (the classification of roads that most closely mirror those included in urban congestion analysis in the Scorecard) since 2001. Taken together, these three charts show consistent national trends in 2010. Fuel prices rose consistently, though not so quick or high to significantly impact travel patterns, as quick spikes in recent years have. Job losses that reduced national employment by more than 8 million at its peak have turned in to job growth at the national level—albeit modest. And traffic volumes—with a growing population and a nation adjusted to the "new normal"—are back approaching record levels.

From this data, one would expect that traffic congestion is on the rebound. If you have been fortunate enough to stay employed through this tumultuous five year period, your commutes have most likely improved as the recession worsened and dragged on. Did the trend reverse, and is congestion worse? Short answer is likely yes, but it depends. Like the good old days, it depends on where you live…and where you drive where you live.

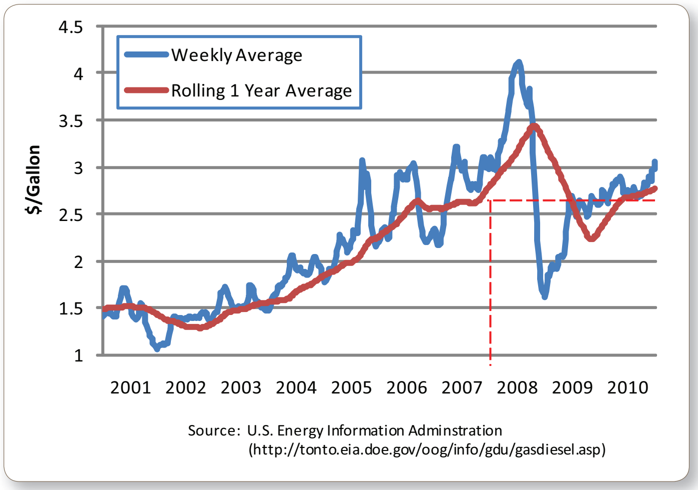


Figure 1: Average U.S. Fuel Prices (Regular, All Formulations)

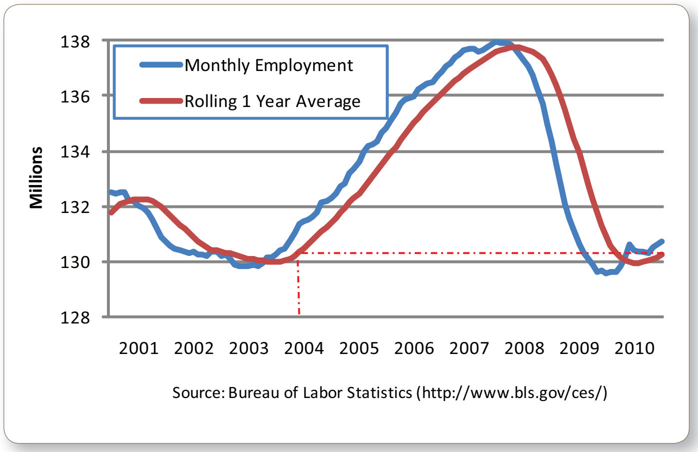


Figure 2: Total U.S. Non-Farm Employment

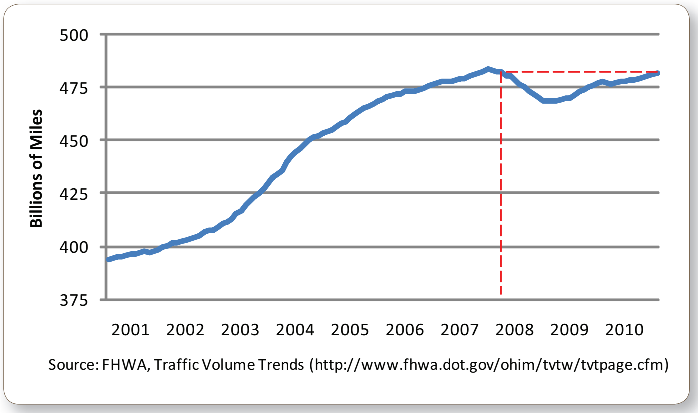


Figure 3: Traffic Volume on "Urban Interstates" (12-month Rolling Average)

SCG Doc#260049 EF-A18

Introduction

New Features

As the breadth and depth of INRIX's archived traffic data continues to expand, so does our ability to create useful information from it. In this 2010 Annual Report, several new features have been added or expanded:

- **Congested Corridors:** Since the 2007 Annual Report, specific congestion road segments—bottlenecks—have been indentified, described and ranked. This report also includes data that links adjacent congested segments into "corridors" that may be more recognizable to travelers. 341 congested corridors were identified in 2010 and their details, national and regional rankings are included in this report for the first time.
- **Regional Employment Data:** With the linkage between jobs, economic recovery and traffic, tracking job loss/growth is critical to understanding congestion data. This report includes regional employment data from 2006-2010 to bring the jobs/traffic linkage to the metropolitan level. The unevenness of congestion trends can be explained in most cases by the unevenness of job levels and regional economies.
- **15 Minute Congestion Data:** Most data in this report and all previous reports is based upon hourly average speed data. To create a more granular view of time of day traffic patterns, the national and regional daily travel time tax charts are based on 15 minute averages, allowing for 4 times the data points to be graphed at the worst time to travel to be pinpointed to a specific 15 minute window.
- **Comparison to Other Countries:** In November 2010, INRIX released similar traffic scorecards for six northern European countries—the United Kingdom, France, Germany, Belgium, the Netherlands and Luxembourg.[2] In total, 106 metropolitan areas in Europe were analyzed using the exact same methodologies used for the United States. This report contains a new section that compares congestion between U.S. cities and those analyzed in Europe.

[2] http://euscorecard.inrix.com.

Methodology

From its inception in 2007, the INRIX National Traffic Scorecard drew from several existing approaches to calculating traffic congestion and introduced new methods made possible by INRIX's proprietary data. This section provides background on the raw data and the processes used to create the Scorecard.

Source Data

The raw data comes from the historical traffic data warehouse of the INRIX Smart Dust Network. Since 2006, INRIX has acquired tens of billions of discrete "GPS-enabled probe vehicle" reports from vehicles traveling the nation's roads—including taxis, airport shuttles, service delivery vans, long haul trucks, and consumer vehicles. Each data report from these GPS-equipped vehicles includes the speed, location and heading of a particular vehicle at a reported date and time.

INRIX has developed efficient methods for interpreting probe vehicle reports that are provided in real-time to establish a current estimate of travel patterns in all major cities in the United States. These same methods can aggregate data over periods of time (annually in this report) to provide reliable information on speeds and congestion levels for segments of roads. With the nation's largest real-time probe vehicle network, INRIX generates the most comprehensive and timely congestion analyses to date, covering the nation's largest 100 metropolitan areas and essentially all of the nation's limited access road network.

Metropolitan Area

The U.S. Census Bureau definition of Core Based Statistical Areas (CBSA)[3] is used to define metropolitan areas. This report uses the latest 2009 census estimates[4] to identify the top 100 areas.

Roads/Segments Analyzed

This report focuses on the major limited access roads in the United States. In all of its products, INRIX utilizes an industry convention known as "TMC location codes" developed and maintained by the nation's leading electronic map database vendors to uniquely define road segments. The typical road segment is the interchange and the portion of linear road leading up to the interchange across all lanes in a single direction of travel. The length of a segment will depend upon the length of the distance between interchanges. For this report, over 110,000 road miles in over 48,000 discrete road segments have been analyzed (see Figure 4). Note that as the nation's road network evolves, so does the national map database that describes it. This Scorecard is based on updated 2010 map data. Previous year's data has been normalized to the same 2010 map data to allow apples to apples comparisons. This results in slight revisions in previous year data.

[3] http://www.census.gov/population/www/estimates/aboutmetro.html.

[4] http://www.census.gov/popest/metro/CBSA-est2008-pop-chg.html.

Methodology

Figure 4: *Roads Analyzed in Scorecard (Indicated in Green)*

Analysis Time Period

The focus of this report is the calendar year 2010. In some cases, calendar year 2006, 2007, 2008 and 2009 data is utilized to enable year over year comparisons.

Road Segment Data

There are two key building blocks for the different analyses included in this report:

- **Reference Speed (RS):** For each road segment, all probe vehicle reports obtained in overnight hours (where congestion is usually unlikely) in 2010 are analyzed. The 85^{th} percentile of those data points is identified as the "reference speed" for that particular road segment. This is typically the speed of "free flow" traffic if and when no congestion exists. Each segment has a single reference speed.
- **Hourly Average Speed (HS):** All probe vehicle reports for each road segment are grouped by hour of day, day of week (e.g. Monday from 3 to 4 PM) and an "average speed" for each time slot is established for each road segment. Thus, each segment has 168 corresponding hourly average speed values—representing 24 hours of each day multiplied by the seven days in a week.

Methodology

Overall Congestion Metrics – Regional and National

To assess congestion for a CBSA, INRIX utilizes concepts that have been used in similar studies.

- **Travel Time Index (TTI):** TTI is the ratio of peak period travel time to free flow travel time. The TTI expresses the average amount of extra time it takes to travel in the peak relative to free-flow travel. A TTI of 1.3, for example, indicates a 20-minute free-flow trip will take 26 minutes during the peak travel time periods, a 6-minute (30 percent) travel time penalty.[5] For each road segment, a TTI is calculated for each hour of the week, using the formula TTI = RS/HS.
- **"Peak Hour" Congestion:** To assess and compare congestion levels year to year and between CBSAs, only "peak hours" are analyzed. Consistent with similar studies, peak hours are defined as the hours from 6 to 10 AM and 3 to 7 PM, Monday through Friday—40 of the 168 hours of a week.

For each Metropolitan Area, an overall level of congestion is determined for each of the 40 peak hours by determining the extent and amount of average congestion on the analyzed road network. This is easy to compute once TTI's are calculated for each segment:

STEP 1: For each of the 40 peak hours, all road segments analyzed in the CBSA are checked. Each segment where the TTI > 1 is contributing congestion, and it is analyzed further.

STEP 2: For each segment contributing congestion, the amount the TTI is greater than 1 is multiplied by the length of the segment, resulting in a congestion factor.

STEP 3: For a given hour, the overall metropolitan congestion factor is the sum of the congestion factors calculated in STEP 2.

STEP 4: To establish the Metropolitan Travel Time Index for a given hour, the metropolitan congestion factor from STEP 3 is divided by the number of road miles analyzed.

STEP 5: A peak period Metropolitan Travel Time Index is determined by averaging the hourly Metropolitan Travel Time Indices from STEP 4.

INRIX introduced a variant of the Travel Time Index in last year's report and will continue to use it in this report as a means of communicating more directly the impact of congestion—the Travel Time Tax™. While all calculations driving the Scorecard continue unchanged as described above, the Travel Time Tax, or T^3, takes the portion of the TTI above 1.00 and turns it into a percentage. For example, a TTI of 1.25 equates to a T^3 of 25%. Much like a sales tax, T^3 can be considered that additional cost of travel above uncongested conditions. Throughout the report, T^3 is being utilized where TTI was utilized in the past. The methodology is the same; communications of the results is what has changed.

[5] See note at bottom of this link: http://www.bts.gov/publications/national_transportation_statistics/html/table_01_64.html.

Methodology

Bottlenecks

With the unique ability to examine in detail nearly 48,000 highway road segments, INRIX identifies the specific locations in each area—and can compare locations across the country—that are consistently congested. These are "bottlenecks."[6]

Congestion—and how to measure it—can be in the eye of the beholder. Is congestion defined as how bad a road segment is at its worst or is it how often the segment gets "congested" (and what is the threshold for "congestion" anyways—tapping the brakes, stop and go conditions, etc.)? INRIX has developed a method that combines both the amount of time a road segment is congested with the intensity of congestion during those periods. The process used to analyze each of the road segments is as follows:

— The same RS and HS values are utilized as in the overall congestion by metropolitan area portion of the study.

— All 168 hours of the week are considered, not just the 40 "peak hours." As will be evident in the data, severe bottlenecks aren't just limited to peak hours.

— For each hour of the week that the average speed is less than 50% of the reference speed (RS), the hour is considered "congested."

— For all congested hours, the average intensity of the congestion is determined by establishing an average travel time ratio.

— The total "congestion intensity" equals the number of hours of congested multiplied by the average travel time ratio.

— Each road segment's congestion intensity can be compared with others in a metropolitan area and against all bottlenecks nationally. It can also be compared year-to-year.

Congested Corridors

A new feature in this year's scorecard expands on the bottleneck analysis by linking neighboring congested road segments into "Congested Corridors." The following approach is used to determine and then rank corridors. 2010 bottlenecks data was used to determine the corridors, using the following criteria:

— The corridor must be comprised of multiple segments.

— The corridor must have at least one segment that is congested ten hours a week or more on average.

[6] From the Federal Highway Administration: Traffic Bottleneck: (Simple definition) A localized constriction of traffic flow. (Expanded definition) A localized section of highway that experiences reduced speeds and inherent delays due to a recurring operational influence or a nonrecurring impacting event.

Methodology

— All road segments in the corridor must have at least four hours a week of congestion on average.

— To prevent inadvertently breaking up logical corridors, in cases where one or two short segments do not meet the four hour minimum, exceptions are made. However, they must be in the middle of a corridor, not at the start or end.

Once the corridors were identified (341 in all), another analysis determined several different travel time statistics that are used to describe and rank each corridor. The following steps were used to analyse and rank the corridors:

- **For each corridor:**

— The uncongested/free flow travel time is calculated (from the RS of each road segment in a corridor).

— Average travel times for both peak periods (AM and PM) are determined.

— The highest peak period travel time is compared to the uncongested/free flow travel time, resulting in both an average peak period delay and peak period Travel Time Tax.

— To illustrate how bad a corridor is at its most congested, the worst hour delay and Travel Time Tax is computed.

- **To rank corridors:**

— A corridor congestion factor is determined for each corridor by multiplying average delay by the Travel Time Tax for the worse of the AM or PM peak periods.

— Each corridor's congestion factor can be compared to and ranked against others in a metropolitan area and against all corridors.

National Congestion Results and Trends

The methodology used to measure overall congestion and to establish metropolitan travel time index for each of the weekly 40 drive time hours enables the calculation of overall national congestion metrics, by hour, by morning and evening drive time, by day, by month and overall. Note that this section of the Scorecard continues to focus only on the major urban roads in the 100 largest metropolitan areas in the United States.

Overall Travel Time Tax and Congestion

Overall, the nation's peak period Travel Time Tax (T^3) for 2010 was 9.7%. This means that during peak driving times[7] a random traveler on a random trip on the roads analyzed took on average 9.7% extra time than if there was no congestion.

2010's T^3 is an 11% increase from 2009's T^3 of 8.71%. The 2010 T^3 is still well below 2007 and 2006 levels. Figure 5 shows the nation's annual Travel Time Tax from 2006 to 2010, and Table 1 compares the 2010 T^3 with 2006 through 2009, showing that 2009's T^3 more than 1/4th less than 2007 and more than 1/8th less than 2006, the first year that can be reported using INRIX data and methods.

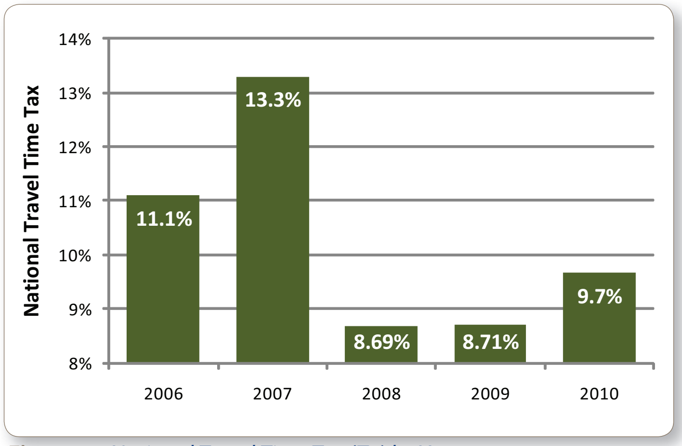


Figure 5: *National Travel Time Tax (T3) by Year, 2006-2010*

Change in National Travel Time Tax	
2010 vs.	**Up/Down (%)**
2009	11.0%
2008	11.3%
2007	-27.3%
2006	-12.9%

Table 1: *Change in National Travel Time Tax, 2010 vs. Previous Years*

National Travel Time Tax by Month

INRIX has calculated regional and national Travel Time Tax's, T^3, by month since January 2008. With 36 months of data compiled, three years of monthly comparisons are now possible. Figure 6 shows the changes in T^3 from month-to-month and for the same months in 2008, 2009 and 2010. For comparison, the Annual T^3s are shown for 2006 and 2007.

[7] Peak period drive time hours are 6–10 AM and 3–7 PM, Monday through Friday.

National Congestion Results and Trends

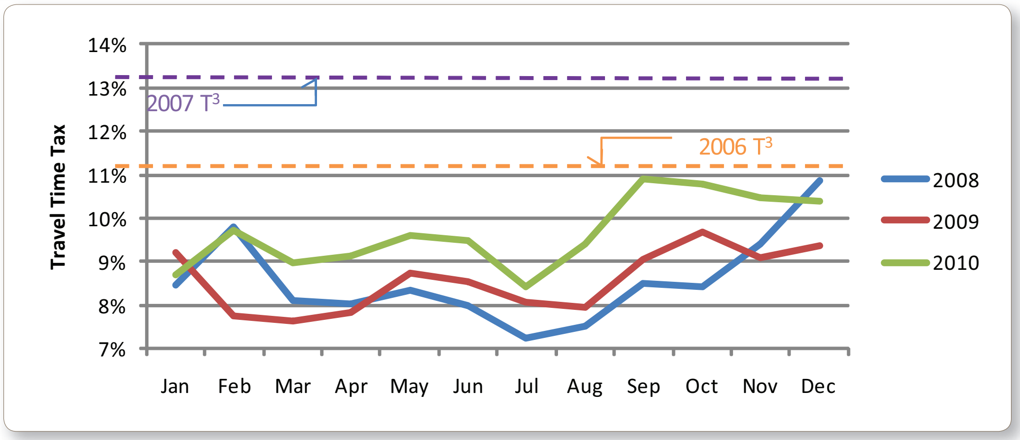


Figure 6: National Travel Time Tax by Month

Traffic volumes have historically varied significantly from month-to-month over the course of a calendar year. Monthly T³—both nationally and in each region—exhibits similar characteristics, meaning that over time it is more meaningful to compare the same month from year to year, than one month to the next. Winter conditions also have significant an unpredictable impacts on both volumes and congestion.

Ignoring the winter months of December through February, where blizzards and general year-to-year changes in climate patterns can skew the results, 2010 monthly data shows consistently more congestion nationwide than 2008 or 2009. Figure 7 shows the national T³ as a twelve month rolling average, beginning in January 2009. Aside from the winter period of late 2009-2010 (again, likely caused by weather variations from previous years), the rolling average has been moving up steadily since April 2009's low of 8.4%. This tracks the macroeconomic picture as national Gross Domestic Product data[8] identifies the 2nd quarter of 2009 as the low point in the recession.

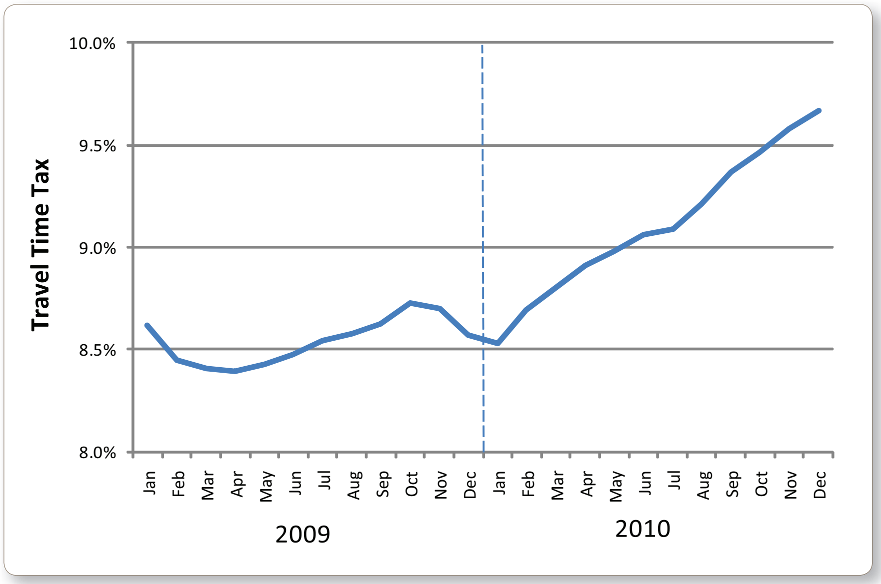


Figure 7: Rolling Annual National Travel Time Tax

[8] http://www.bea.gov/national/index.htm#gdp

SCG Doc#260049 EF-A26

National Congestion Results and Trends

National Travel Time Tax by Hour and Day of Week

Figure 8 shows the national T3 by hour and day of week. To provide a better picture of congestion patterns, this year's national and regional hour and day of week charts include precision to the 15 minute time period between 4 AM to 10 PM, versus the one hour time period used in previous reports. Figure 9 plots the change is Travel Time Tax for each day/hour between 2009 and 2010 (note: "5 PM" in the figures refers to the 5-6 PM hour, etc.). Figure 10 provides the National Travel Time Tax for each day's peak period as well as both peaks together, and Table 2 provides several factoids about the nation's daily commute patterns.

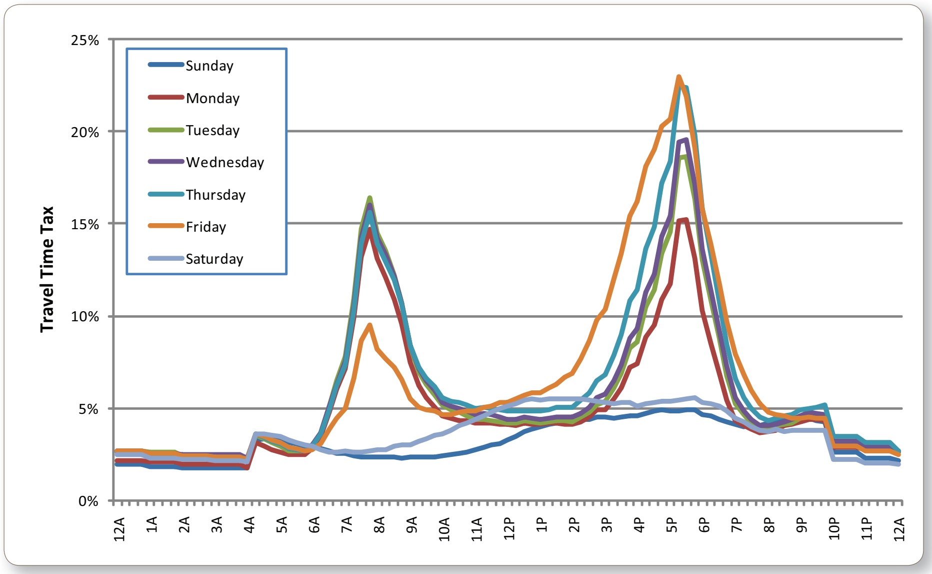


Figure 8: *2010 Travel Time Tax, by Hour and Day of Week*

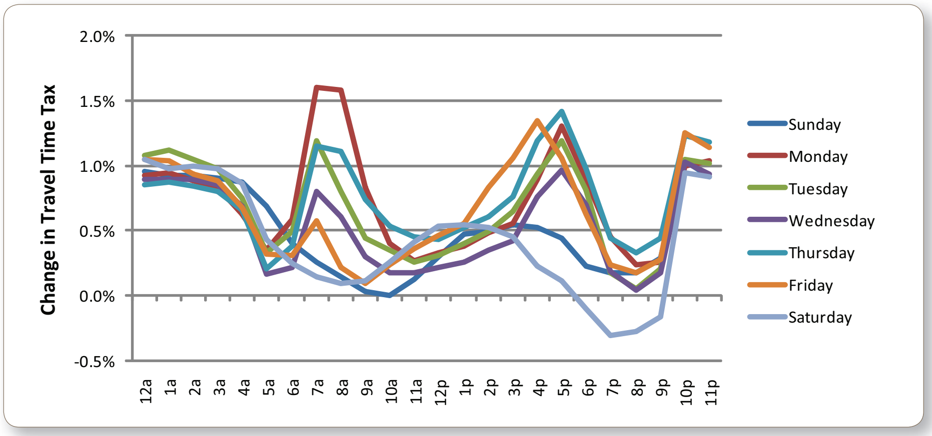


Figure 9: *Change in National Travel Time Tax by Day/Hour from 2009 to 2010*

SCG Doc#260049 EF-A27

National Congestion Results and Trends

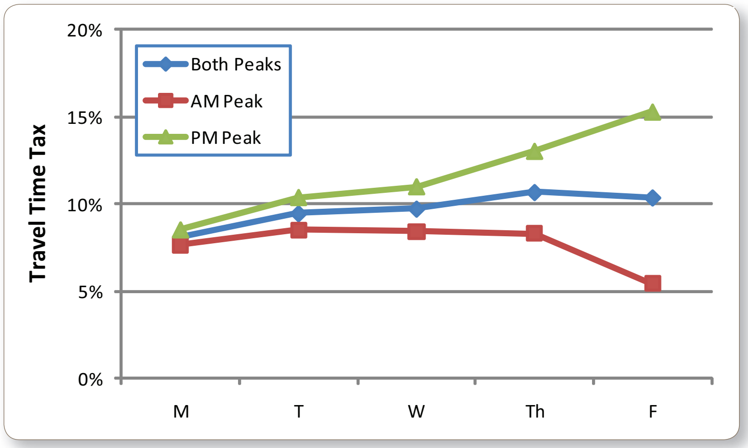


Figure 10: 2010 National Travel Time Tax by Day

Peak Period Factoids				
	2010	T^3	2009	T^3
Worst AM	Tuesday	8.5%	Wednesday	8.0%
Worst PM	Friday	15.3%	Friday	14.3%
Worst Day	Thursday	10.7%	Thursday	9.7%
Best AM	Friday	5.4%	Friday	5.1%
Best PM	Monday	8.5%	Monday	7.6%
Best Day	Monday	8.1%	Monday	7.1%
Overall AM	M-F	7.7%	M-F	7.0%
Overall PM	M-F	11.7%	M-F	10.7%
Worst Hour	Friday 5-6 PM	19.9%	Friday 5-6 PM	18.8%
Best Hour	Friday 6-7 AM	3.3%	Friday 6-7 AM	3.0%
Biggest Increase from 2009	Monday 7-8 AM			1.6%
Biggest Decrease from 2009	Not Applicable			

Table 2: 2010 National Peak Period Factoids, 2009 and 2010

Noteworthy findings:

— The "morning peak" tends to be elevated for about an hour each day, from 7:30 to 8:30 AM, peaking each weekday between 7:45 and 8:00 AM.

— The "evening peak" tends to reach its highest levels for only about 30 minutes, from 5:15 to 5:45 PM Monday through Thursday, while Friday's have a more drawn out peak period from 4:15 to 6:00 PM.

National Congestion Results and Trends

- Evening peak periods exceed morning peak periods all weekdays, particularly Tuesday to Friday.
- Friday from 5:15 to 5:30 PM is America's most congested time, with a Travel Time Tax of 23%; and the hour of 5 to 6 PM on Friday remains the most congested hour with a T^3 of 20% up from 19% in 2009.
- Tuesday is America's most congested morning rush hour, with a Travel Time Tax of 8.5%. In 2009, Wednesday was the most congested morning at 8%.
- Monday saw the largest increases in peak period congestion in 2010, particularly in the morning. This indicates that more people were going to work, less people were playing hooky on Monday, or (most likely) a combination of the two.
- T^3 increased for every AM peak hour, averaging 0.7% increases. This contrasts to 2009, when the AM peak dropped an average of 0.3% each hour.
- T^3 increased for every PM peak hour, averaging 0.9% increases. This builds on 2009, when the PM peak increased from 2008 an average of 0.4% each hour.
- Every hour outside of the peak periods, except Saturday evenings, saw an increase in T^3 signaling an increase in work zone related slowdowns. This data indicates that stimulus projects were still being measured and, as in 2009, that on major roads agencies were doing much of their major work in overnight hours.

Metropolitan Rankings

A staple of the Scorecard is the metropolitan rankings. With now five years of data, during the tumultuous period since 2006, tables in this Annual Report have been designed to emphasize not only the 2010 rankings but also the five year trends.

Tables 3 and 4 provide market to market comparisons of metropolitan areas. Table 3 focuses on overall congestion levels while Table 4 details the Travel Time Tax (T^3)[9] levels. As described on page 20, overall congestion and travel time tax metrics are fundamentally different but equally viable ways to assess congestion. The print version of the tables included in this report is sorted on Peak Hour Congestion rank (Table 3) and by Travel Time Tax rank (Table 4). The online version of these tables are combined and located at http://scorecard.inrix.com and can be sorted by all columns to show rankings based on each parameter.

Included in Table 3 are:

- **Metropolitan Area details**, including the official Core Based Statistical Area (CBSA) name, the total population, the national population rank and the number of road miles analyzed (which varies based on the size of the region and the extent of its limited access road network).
- **Peak Hour Congestion rankings** for 2006 through 2010 (peak hours are the 40 hours each week from Monday through Friday in the morning rush hours of 6 to 10 AM and the evening rush hours from 3 to 7 PM).
- **Multiple comparisons of 2010 results**, including each region's 2010 overall congestion, referenced in terms of the percentage of the nation's worst overall congestion (Los Angeles), the percentage of overall nationwide peak period congestion in the top 100 markets each CBSA is responsible for, and the relative amount of congestion each region has in its peak 40 hours versus its off peak 128 hours.

Included in Table 4 are:

- **Metropolitan Area details**, including the population rank and the official Core Based Statistical Area (CBSA) name of the region.
- **Peak Hour Travel Time Tax (T^3) rankings**, for 2006 through 2010.
- **Peak Hour Travel Time Tax (T^3) results**, for 2006 through 2010.
- **Travel Time Tax (T^3) changes**, including the percentage change in T^3 from 2009 to 2010 and both the percentage change and absolute change[10] in T^3 from 2006 to 2010, and the ranking of the absolute change in T^3 from 2006 to 2010.
- **"Worst Time" results**, including worst day/time for congestion in the region for 2010, the T^3 during that hour and the rank of the T^3 compared to other regions.

[9] Travel Time Tax is the percentage of extra travel time (vs. "free flow") a random trip takes in the specific region and time period analyzed. A 10% tax means 10% additional trip time due to congestion.
[10] Absolute change means the absolute change in T^3. A drop in T^3 from 10% to 9% is a 1% absolute drop, and a 10% percentage drop.

Metropolitan Rankings

Note in Tables 3 and 4 that there are several colored cells. These cells visually assist in viewing the rankings and year to year changes where applicable. Red cells rank one through ten, orange cells 11- 20, yellow cells 21 - 30, light green 31- 40, olive green 41 – 50, and bright green 51 – 100.

Metropolitan Area				Congestion Rank					2010 Comparisons (%)			
CBSA	Pop Rank	Pop (000)	Road Miles Analyzed	2010	2009	2008	2007	2 006	Of Worst CBSA	Of Top 100	Peak Period	Off Peak
Top 100 Summary		201,502	46,266								53	47
Los Angeles-Long Beach-Santa Ana CA	2	12,875	1,448	1	1	1	1	1	100	11	40	60
New York-Northern New Jersey-Long Island NY-NJ-PA	1	19,070	2,186	2	2	2	2	2	99	11	51	49
Chicago-Naperville-Joliet IL-IN-WI	3	9,581	1,298	3	3	3	3	3	42	5	51	49
Washington-Arlington-Alexandria DC-VA-MD-WV	8	5,476	849	4	4	6	4	5	40	5	45	55
Dallas-Fort Worth-Arlington TX	4	6,448	1,530	5	5	5	5	7	36	4	42	58
San Francisco-Oakland-Fremont CA	13	4,318	701	6	7	7	6	4	35	4	42	58
Houston-Sugar Land-Baytown TX	6	5,867	1,169	7	6	4	7	9	32	4	43	57
Boston-Cambridge-Quincy MA-NH	10	4,589	985	8	8	8	8	11	26	3	45	55
Philadelphia-Camden-Wilmington PA-NJ-DE-MD	5	5,968	985	9	10	11	12	14	23	3	54	46
Seattle-Tacoma-Bellevue WA	15	3,408	590	10	9	9	9	6	23	3	42	58
Minneapolis-St. Paul-Bloomington MN-WI	16	3,270	805	11	11	10	13	16	22	3	41	59
Atlanta-Sandy Springs-Marietta GA	9	5,475	910	12	12	12	10	8	21	2	44	56
San Diego-Carlsbad-San Marcos CA	17	3,054	599	13	17	15	14	12	17	2	53	47
Baltimore-Towson MD	20	2,691	658	14	15	17	19	21	16	2	48	52
Miami-Fort Lauderdale-Pompano Beach FL	7	5,547	694	15	13	13	11	10	15	2	46	54
Denver-Aurora-Broomfield CO	21	2,552	740	16	16	16	18	17	15	2	56	44
Riverside-San Bernardino-Ontario CA	14	4,143	609	17	18	20	16	13	13	1	57	43
San Jose-Sunnyvale-Santa Clara CA	31	1,840	348	18	19	19	20	18	13	1	45	55
Phoenix-Mesa-Scottsdale AZ	12	4,364	1,092	19	14	14	15	15	12	1	57	43
Portland-Vancouver-Beaverton OR-WA	23	2,242	369	20	21	22	21	19	11	1	39	61
Sacramento--Arden-Arcade--Roseville CA	25	2,127	656	21	23	24	24	20	10	1	61	39
Detroit-Warren-Livonia MI	11	4,403	772	22	27	18	17	24	10	1	49	51
Pittsburgh PA	22	2,355	591	23	24	26	29	30	10	1	62	38
Bridgeport-Stamford-Norwalk CT	56	901	222	24	26	21	22	22	10	1	38	62
St. Louis MO-IL	18	2,829	899	25	20	23	23	23	9	1	60	40
Austin-Round Rock TX	35	1,705	209	26	22	25	26	28	9	1	30	70
San Antonio TX	28	2,072	695	27	25	27	25	26	9	1	54	46
Kansas City MO-KS	29	2,068	989	28	29	29	27	36	8	1	63	37
Cincinnati-Middletown OH-KY-IN	24	2,172	564	29	31	31	33	35	7	1	55	45
Virginia Beach-Norfolk-Newport News VA-NC	36	1,674	284	30	28	30	32	33	7	1	53	47
Cleveland-Elyria-Mentor OH	26	2,091	589	31	41	39	36	40	7	1	65	35
Nashville-Davidson--Murfreesboro--Franklin TN	38	1,582	569	32	34	36	31	34	6	1	45	55
Milwaukee-Waukesha-West Allis WI	39	1,560	328	33	40	34	46	42	6	1	53	47
Birmingham-Hoover AL	47	1,131	505	34	33	38	51	50	5	1	62	38
Las Vegas-Paradise NV	30	1,903	463	35	32	40	37	32	5	1	70	30
Charlotte-Gastonia-Concord NC-SC	33	1,746	337	36	44	42	28	25	5	1	52	48
Honolulu HI	55	908	75	37	37	33	38	38	5	1	30	70
Tampa-St. Petersburg-Clearwater FL	19	2,747	413	38	30	28	30	27	5	1	49	51
Oklahoma City OK	44	1,227	668	39	42	43	40	48	5	1	72	28
New Orleans-Metairie-Kenner LA	46	1,190	305	40	39	35	42	37	4	1	52	48
Columbus OH	32	1,802	505	41	53	48	48	55	4	1	56	44
Baton Rouge LA	66	787	224	42	35	32	47	47	4	1	43	57
Orlando-Kissimmee FL	27	2,082	550	43	38	37	35	29	4	0.5	64	36
Indianapolis-Carmel IN	34	1,744	537	44	52	50	45	58	4	0.5	65	35
Hartford-West Hartford-East Hartford CT	45	1,196	336	45	45	41	41	46	4	0.5	54	46
New Haven-Milford CT	60	848	252	46	43	45	44	41	4	0.5	56	44
Louisville/Jefferson County KY-IN	42	1,259	566	47	36	47	43	45	4	0.5	63	37
Tulsa OK	53	929	587	48	48	53	62	49	4	0.5	75	25
Providence-New Bedford-Fall River RI-MA	37	1,601	349	49	46	44	39	39	4	0.4	59	41
Buffalo-Niagara Falls NY	50	1,124	297	50	55	58	68	64	3	0.4	64	36

Metropolitan Area				Congestion Rank					2010 Comparisons (%)			
CBSA	Pop Rank	Pop (000)	Road Miles Analyzed	2010	2009	2008	2007	2 006	Of Worst CBSA	Of Top 100	Peak Period	Off Peak
Scranton--Wilkes-Barre PA	92	549	291	51	58	63	61	71	3	0.4	71	29
Raleigh-Cary NC	49	1,126	276	52	60	54	60	54	3	0.3	69	31
Little Rock-North Little Rock-Conway AR	76	685	428	53	50	56	59	59	3	0.3	60	40
Harrisburg-Carlisle PA	96	537	323	54	59	61	58	56	3	0.3	64	36
Oxnard-Thousand Oaks-Ventura CA	65	803	119	55	63	51	53	51	3	0.3	62	38
Allentown-Bethlehem-Easton PA-NJ	62	816	353	56	61	65	49	44	3	0.3	72	28
Salt Lake City UT	48	1,130	511	57	51	49	50	52	3	0.3	77	23
Jacksonville FL	40	1,328	466	58	47	46	34	31	3	0.3	61	39
Richmond VA	43	1,238	630	59	65	62	56	63	3	0.3	82	18
Memphis TN-MS-AR	41	1,305	405	60	49	52	54	43	2	0.3	63	37
Albuquerque NM	57	858	370	61	54	55	57	66	2	0.3	72	28
Syracuse NY	81	646	333	62	73	72	85	86	2	0.3	74	26
Rochester NY	51	1,036	387	63	62	60	67	67	2	0.3	68	32
Poughkeepsie-Newburgh-Middletown NY	77	677	265	64	57	73	84	85	2	0.2	75	25
Madison WI	88	570	370	65	67	70	73	72	2	0.2	71	29
Provo-Orem UT	91	556	220	66	74	86	88	87	2	0.2	75	25
Charleston-North Charleston-Summerville SC	80	659	176	67	66	67	71	65	2	0.2	74	26
Omaha-Council Bluffs NE-IA	59	850	427	68	56	57	83	80	2	0.2	74	26
Columbia SC	69	745	360	69	71	76	75	76	2	0.2	78	22
Dayton OH	61	835	303	70	76	68	66	75	2	0.2	66	34
El Paso TX	68	751	141	71	64	59	69	90	2	0.2	52	48
Chattanooga TN-GA	98	524	192	72	70	75	81	82	2	0.2	66	34
Akron OH	72	700	297	73	89	82	65	68	2	0.2	71	29
Greenville-Mauldin-Easley SC	82	640	180	74	81	85	96	96	2	0.2	70	30
Worcester MA	64	804	270	75	68	66	55	53	1	0.2	77	23
Wichita KS	84	613	433	76	72	79	95	89	1	0.2	78	22
Bakersfield CA	63	807	355	77	80	83	80	81	1	0.2	78	22
Fresno CA	54	915	267	78	78	80	92	98	1	0.2	72	28
Youngstown-Warren-Boardman OH-PA	89	563	261	79	92	89	86	83	1	0.2	80	20
Albany-Schenectady-Troy NY	58	858	309	80	69	69	72	74	1	0.1	77	23
Stockton CA	78	675	250	81	82	71	63	60	1	0.1	78	22
Greensboro-High Point NC	71	715	269	82	91	94	91	94	1	0.1	81	19
Boise City-Nampa ID	85	606	124	83	84	81	79	84	1	0.1	65	35
McAllen-Edinburg-Mission TX	70	741	85	84	94	95	99	97	1	0.1	64	36
Colorado Springs CO	83	626	102	85	88	91	76	69	1	0.1	68	32
Jackson MS	94	541	293	86	75	78	52	73	1	0.1	74	26
Knoxville TN	73	699	197	87	87	84	77	70	1	0.1	76	24
Tucson AZ	52	1,020	199	88	83	77	70	93	1	0.1	77	23
Des Moines-West Des Moines IA	90	563	271	89	85	87	89	78	1	0.1	74	26
Grand Rapids-Wyoming MI	67	778	246	90	77	74	87	77	1	0.1	77	23
Ogden-Clearfield UT	93	542	140	91	86	64	64	57	1	0.1	78	22
Augusta-Richmond County GA-SC	95	539	168	92	95	96	97	92	1	0.1	79	21
Toledo OH	79	672	258	93	97	97	78	91	1	0.1	69	31
Springfield MA	74	699	165	94	79	93	90	79	1	0.1	80	20
Portland-South Portland-Biddeford ME	99	517	222	95	90	90	98	95	0.5	0.1	88	12
Palm Bay-Melbourne-Titusville FL	97	536	189	96	93	88	94	99	0.4	0.05	83	17
Modesto CA	100	510	104	97	100	99	100	100	0.4	0.04	80	20
Bradenton-Sarasota-Venice FL	75	688	161	98	96	98	93	88	0.3	0.03	89	11
Lakeland-Winter Haven FL	87	583	107	99	98	100	74	62	0.3	0.03	84	16
Cape Coral-Fort Myers FL	86	587	92	100	99	92	82	61	0.2	0.02	85	15

Table 3: *Metropolitan Area Congestion Rankings*

Metropolitan Rankings

Metropolitan Area		Travel Time Tax (T^3)					Travel Time Tax (T^3)					T^3 Changes	2006 -2010			Worst Time (2010)		
Population Rank	CBSA	2010 Rank	2009 Rank	2008 Rank	2007 Rank	2006 Rank	2010 T^3 (%)	2009 T^3 (%)	2008 T^3 (%)	2007 T^3 (%)	2006 T^3 (%)	2009-2010 % Change (%)	% Change (%)	Absolute Change	Absolute Rank	Day/Time	T^3	Rank
	Top 100 Summary						**10**	**9**	**9**	**13**	**11**	11	-13	-1.4%		**F, 5:15-5:30pm**	**23%**	
2	Los Angeles-Long Beach-Santa Ana CA	**1**	1	2	2	1	35	34	32	45	44	5	-19	-8.3%	5	Th, 5:30-5:45pm	71%	2
55	Honolulu HI	**2**	2	1	1	2	33	32	34	47	39	1	-16	-6.1%	9	Th, 5:15-5:30pm	76%	1
13	San Francisco-Oakland-Fremont CA	**3**	4	3	4	3	26	22	23	31	30	18	-12	-3.7%	21	Th, 5:30-5:45pm	63%	4
8	Washington-Arlington-Alexandria DC-VA-MD-WV	**4**	3	5	8	7	24	23	21	28	22	2	8	1.8%	88	Th, 5:30-5:45pm	51%	6
1	New York-Northern New Jersey-Long Island NY-NJ-PA	**5**	6	8	5	11	23	20	20	29	21	17	12	2.5%	96	F, 5:15-5:30pm	47%	9
35	Austin-Round Rock TX	**6**	5	6	7	6	22	21	21	28	22	8	0	0.1%	62	Th, 5:15-5:30pm	70%	3
56	Bridgeport-Stamford-Norwalk CT	**7**	8	4	3	5	22	18	22	32	27	22	-19	-5.1%	15	F, 5:15-5:30pm	60%	5
15	Seattle-Tacoma-Bellevue WA	**8**	7	7	6	4	20	19	20	29	29	6	-32	-9.2%	3	Th, 5:15-5:30pm	48%	8
31	San Jose-Sunnyvale-Santa Clara CA	**9**	10	11	11	9	19	14	16	22	21	30	-11	-2.3%	31	Th, 5:30-5:45pm	49%	7
3	Chicago-Naperville-Joliet IL-IN-WI	**10**	9	9	10	12	17	17	19	23	20	-1	-19	-3.8%	20	F, 5:15-5:30pm	41%	13
23	Portland-Vancouver-Beaverton OR-WA	**11**	14	15	14	15	15	12	12	20	19	23	-19	-3.5%	22	F, 4:45-5:00pm	42%	11
17	San Diego-Carlsbad-San Marcos CA	**12**	19	12	9	10	15	11	14	24	21	35	-28	-5.9%	12	Th, 5:30-5:45pm	36%	17
16	Minneapolis-St. Paul-Bloomington MN-WI	**13**	15	13	19	20	14	12	13	17	12	19	18	2.2%	95	Th, 5:15-5:30pm	40%	14
6	Houston-Sugar Land-Baytown TX	**14**	11	10	18	17	14	13	16	18	14	5	-1	-0.1%	57	F, 5:15-5:30pm	33%	20
10	Boston-Cambridge-Quincy MA-NH	**15**	13	14	15	18	13	12	13	18	13	9	1	0.2%	67	F, 5:30-5:45pm	33%	19
36	Virginia Beach-Norfolk-Newport News VA-NC	**16**	16	17	21	24	13	12	12	15	12	11	12	1.4%	82	F, 4:30-4:45pm	42%	12
20	Baltimore-Towson MD	**17**	20	22	25	34	13	11	10	14	10	19	33	3.2%	100	Th, 5:30-5:45pm	36%	16
5	Philadelphia-Camden-Wilmington PA-NJ-DE-MD	**18**	22	20	24	22	12	10	10	14	12	19	3	0.4%	73	F, 5:15-5:30pm	29%	25
4	Dallas-Fort Worth-Arlington TX	**19**	18	19	22	25	12	11	11	15	11	5	5	0.6%	77	F, 5:15-5:30pm	36%	15
65	Oxnard-Thousand Oaks-Ventura CA	**20**	26	23	16	16	12	8	9	18	14	50	-17	-2.4%	30	F, 5:15-5:30pm	43%	10
9	Atlanta-Sandy Springs-Marietta GA	**21**	21	21	17	14	12	11	10	18	19	10	-38	-7.0%	7	F, 5:15-5:30pm	34%	18
7	Miami-Fort Lauderdale-Pompano Beach FL	**22**	12	16	12	8	11	12	12	21	22	-9	-48	-10.5%	1	W, 5:30-5:45pm	26%	28
14	Riverside-San Bernardino-Ontario CA	**23**	24	25	13	13	11	9	8	20	20	28	-45	-9.1%	4	F, 5:15-5:30pm	30%	24
21	Denver-Aurora-Broomfield CO	**24**	23	24	33	30	10	9	9	11	10	9	0	0.0%	60	F, 5:15-5:30pm	26%	29
66	Baton Rouge LA	**25**	17	18	30	37	10	12	12	12	9	-13	16	1.4%	83	F, 5:15-5:30pm	30%	23
39	Milwaukee-Waukesha-West Allis WI	**26**	30	28	45	44	9	7	8	8	7	38	40	2.6%	98	Th, 5:15-5:30pm	29%	27
22	Pittsburgh PA	**27**	29	33	36	38	9	7	7	10	8	21	2	0.1%	65	Th, 5:15-5:30pm	18%	42
60	New Haven-Milford CT	**28**	25	27	31	31	8	8	8	12	10	0	-14	-1.4%	37	F, 5:15-5:30pm	31%	21
25	Sacramento--Arden-Arcade--Roseville CA	**29**	31	37	35	28	8	7	6	10	11	23	-23	-2.4%	29	Th, 5:15-5:30pm	23%	31
46	New Orleans-Metairie-Kenner LA	**30**	27	29	39	35	8	8	8	10	9	0	-21	-2.0%	35	F, 5:15-5:30pm	20%	36
33	Charlotte-Gastonia-Concord NC-SC	**31**	35	36	26	19	7	6	6	13	13	21	-42	-5.3%	14	F, 5:30-5:45pm	31%	22
11	Detroit-Warren-Livonia MI	**32**	42	32	23	42	7	5	7	15	7	34	-8	-0.6%	48	Th, 5:30-5:45pm	19%	41
24	Cincinnati-Middletown OH-KY-IN	**33**	40	40	49	52	7	5	5	7	5	26	23	1.3%	80	Th, 5:15-5:30pm	21%	34
28	San Antonio TX	**34**	37	39	42	43	7	6	6	9	7	10	-9	-0.7%	47	F, 5:15-5:30pm	22%	33
45	Hartford-West Hartford-East Hartford CT	**35**	36	35	37	46	6	6	7	10	6	7	1	0.1%	63	F, 5:15-5:30pm	22%	32
68	El Paso TX	**36**	34	30	38	63	6	6	8	10	4	3	76	2.8%	99	W, 5:15-5:30pm	19%	40
70	McAllen-Edinburg-Mission TX	**37**	57	49	61	58	6	3	4	6	4	77	42	1.8%	89	W, 5:15-5:30pm	11%	61
26	Cleveland-Elyria-Mentor OH	**38**	53	50	56	57	6	4	3	6	4	65	38	1.7%	86	Th, 5:30-5:45pm	16%	47
19	Tampa-St. Petersburg-Clearwater FL	**39**	28	31	28	21	6	7	8	12	12	-20	-50	-6.0%	10	F, 5:30-5:45pm	21%	35
12	Phoenix-Mesa-Scottsdale AZ	**40**	32	26	29	29	6	7	8	12	10	-12	-44	-4.6%	18	Th, 5:15-5:30pm	13%	52
38	Nashville-Davidson--Murfreesboro--Franklin TN	**41**	44	47	20	26	6	5	4	17	11	23	-49	-5.6%	13	Th, 5:15-5:30pm	17%	45
80	Charleston-North Charleston-Summerville SC	**42**	43	44	27	23	6	5	4	13	12	22	-51	-5.9%	11	W, 5:30-5:45pm	19%	37
50	Buffalo-Niagara Falls NY	**43**	51	51	77	64	6	4	3	4	4	45	54	2.0%	92	Th, 5:15-5:30pm	11%	62
30	Las Vegas-Paradise NV	**44**	33	43	48	40	6	6	4	7	8	-11	-33	-2.7%	27	Th, 9:45-10:00pm	24%	30
92	Scranton--Wilkes-Barre PA	**45**	52	57	64	75	5	4	3	6	3	46	92	2.6%	97	F, 4:15-4:30pm	12%	59
37	Providence-New Bedford-Fall River RI-MA	**46**	39	38	40	39	5	5	6	10	8	1	-35	-2.9%	23	F, 5:15-5:30pm	18%	43
49	Raleigh-Cary NC	**47**	50	48	57	50	5	4	4	6	6	38	-5	-0.3%	54	F, 5:15-5:30pm	19%	39
47	Birmingham-Hoover AL	**48**	38	46	76	65	5	6	4	4	4	-4	49	1.7%	87	Th, 5:15-5:30pm	16%	50
18	St. Louis MO-IL	**49**	41	41	47	45	5	5	5	8	6	1	-18	-1.1%	40	Th, 5:15-5:30pm	15%	51
83	Colorado Springs CO	**50**	55	65	34	32	5	4	3	11	10	39	-49	-4.8%	17	F, 5:15-5:30pm	29%	26
91	Provo-Orem UT	**51**	65	88	68	81	5	3	1	5	3	58	80	2.1%	93	F, 5:45-6:00pm	17%	46
98	Chattanooga TN-GA	**52**	49	61	72	67	5	4	3	5	3	19	41	1.3%	81	F, 5:15-5:30pm	19%	38
32	Columbus OH	**53**	70	59	69	74	4	3	3	5	3	67	49	1.5%	84	F, 5:15-5:30pm	17%	44
96	Harrisburg-Carlisle PA	**54**	59	58	63	56	4	3	3	6	4	30	-3	-0.1%	56	F, 5:15-5:30pm	16%	48
82	Greenville-Mauldin-Easley SC	**55**	69	67	90	92	4	3	3	3	2	61	95	2.1%	94	T, 7:45-8:00am	10%	66
85	Boise City-Nampa ID	**56**	56	52	44	53	4	4	3	8	5	23	-14	-0.7%	46	Th, 5:30-5:45pm	12%	56
34	Indianapolis-Carmel IN	**57**	71	79	70	84	4	3	2	5	2	54	70	1.7%	85	F, 5:15-5:30pm	13%	54
29	Kansas City MO-KS	**58**	63	56	62	72	4	3	3	6	3	31	28	0.9%	79	F, 5:15-5:30pm	13%	55
77	Poughkeepsie-Newburgh-Middletown NY	**59**	47	71	86	93	4	4	2	3	2	-3	84	1.9%	90	Su, 4:45-5:00pm	16%	49
27	Orlando-Kissimmee FL	**60**	45	42	46	41	4	4	4	8	8	-8	-50	-4.1%	19	F, 5:15-5:30pm	12%	60
62	Allentown-Bethlehem-Easton PA-NJ	**61**	64	73	53	49	4	3	2	7	6	30	-32	-1.8%	36	Th, 5:15-5:30pm	9%	68
42	Louisville/Jefferson County KY-IN	**62**	46	53	66	61	4	4	3	5	4	-15	-2	-0.1%	59	Th, 5:15-5:30pm	12%	58
81	Syracuse NY	**63**	79	76	97	97	4	2	2	3	2	72	110	1.9%	91	T, 8:00-8:15pm	7%	81
53	Tulsa OK	**64**	73	81	92	66	4	3	2	3	3	38	9	0.3%	71	Th, 5:15-5:30pm	9%	70
44	Oklahoma City OK	**65**	60	54	71	79	4	3	3	5	3	10	32	0.9%	78	Th, 5:15-5:30pm	12%	57
76	Little Rock-North Little Rock-Conway AR	**66**	58	68	82	78	3	3	2	4	3	-2	22	0.6%	76	T, 7:45-8:00am	10%	64
57	Albuquerque NM	**67**	62	64	50	59	3	3	3	7	4	4	-21	-0.9%	43	Th, 5:15-5:30pm	8%	74
41	Memphis TN-MS-AR	**68**	54	60	59	48	3	4	3	6	6	-14	-47	-2.8%	24	W, 5:15-5:30pm	10%	65
51	Rochester NY	**69**	74	70	83	77	3	3	2	4	3	16	6	0.2%	68	T, 7:45-8:00am	7%	76
61	Dayton OH	**70**	83	63	74	80	3	2	3	5	3	56	12	0.3%	72	F, 5:15-5:30pm	10%	63
88	Madison WI	**71**	77	83	89	90	3	2	2	3	2	26	21	0.5%	75	Th, 5:00-5:15pm	7%	77
40	Jacksonville FL	**72**	48	45	41	36	3	4	4	10	9	-28	-70	-6.5%	8	W, 7:45-8:00am	9%	69
64	Worcester MA	**73**	66	55	51	51	3	3	3	7	6	-5	-50	-2.8%	25	Su, 5:30-5:45pm	9%	67
72	Akron OH	**74**	99	86	75	69	3	1	1	5	3	130	-15	-0.5%	51	M, 7:45-8:00am	8%	73
54	Fresno CA	**75**	80	87	58	73	3	2	1	6	3	30	-12	-0.4%	53	T, 7:45-8:00am	5%	89
48	Salt Lake City UT	**76**	67	80	73	68	3	3	2	5	3	-7	-18	-0.6%	49	W, 5:30-5:45pm	7%	80
69	Columbia SC	**77**	81	85	85	82	3	2	2	3	3	26	2	0.1%	61	F, 5:15-5:30pm	8%	71
89	Youngstown-Warren-Boardman OH-PA	**78**	97	94	93	91	3	1	1	3	2	110	12	0.3%	70	M, 9:45-10:00pm	6%	86
78	Stockton CA	**79**	85	75	55	54	2	2	2	6	5	33	-50	-2.5%	28	F, 5:15-5:30pm	8%	72
93	Ogden-Clearfield UT	**80**	68	34	32	33	2	3	7	11	10	-15	-76	-7.3%	6	F, 5:15-5:30pm	13%	53
59	Omaha-Council Bluffs NE-IA	**81**	72	77	91	86	2	3	2	3	2	-15	-6	-0.1%	58	T, 7:30-7:45am	5%	96
73	Knoxville TN	**82**	84	72	65	55	2	2	2	6	5	16	-56	-2.7%	26	F, 5:15-5:30pm	7%	79
52	Tucson AZ	**83**	78	62	52	87	2	2	3	7	2	-5	-11	-0.3%	55	W, 7:45-8:00am	5%	94
43	Richmond VA	**84**	94	89	88	95	2	1	1	3	2	54	8	0.2%	66	Su, 5:15-5:30pm	6%	88
58	Albany-Schenectady-Troy NY	**85**	75	74	80	76	2	2	2	4	3	-14	-27	-0.8%	45	F, 5:15-5:30pm	7%	78
71	Greensboro-High Point NC	**86**	98	96	98	98	2	1	1	3	2	73	30	0.5%	74	F, 9:30-9:45pm	6%	84
63	Bakersfield CA	**87**	93	98	94	96	2	1	1	3	2	44	6	0.1%	64	M, 8:30-8:45pm	4%	99
100	Modesto CA	**88**	96	100	84	71	2	1	1	4	3	56	-39	-1.3%	38	F, 5:30-5:45pm	7%	83
95	Augusta-Richmond County GA-SC	**89**	90	95	95	88	2	2	1	3	2	20	-21	-0.5%	50	W, 8:45-9:00pm	5%	95
74	Springfield MA	**90**	61	84	81	60	2	3	2	4	4	-44	-55	-2.2%	34	Su, 6:30-6:45pm	6%	85
84	Wichita KS	**91**	87	92	100	100	2	2	1	2	1	-1	15	0.2%	69	Th, 5:15-5:30pm	4%	98
94	Jackson MS	**92**	82	78	54	83	2	2	2	7	2	-20	-35	-0.9%	44	Th, 5:15-5:30pm	6%	87
67	Grand Rapids-Wyoming MI	**93**	76	69	78	62	2	2	2	4	4	-35	-60	-2.3%	33	Th, 5:15-5:30pm	8%	75
90	Des Moines-West Des Moines IA	**94**	91	97	96	85	1	1	1	3	2	-2	-39	-1.0%	41	Th, 5:15-5:30pm	5%	91
87	Lakeland-Winter Haven FL	**95**	89	93	60	47	1	2	1	6	6	-26	-80	-4.8%	16	Su, 9:30-9:45pm	4%	97
79	Toledo OH	**96**	100	99	67	89	1	1	1	5	2	48	-51	-1.2%	39	T, 5:15-5:30pm	4%	100
99	Portland-South Portland-Biddeford ME	**97**	92	90	99	94	1	1	1	2	2	-24	-45	-0.9%	42	Su, 3:00-3:15pm	7%	82
97	Palm Bay-Melbourne-Titusville FL	**98**	88	82	87	99	1	2	2	3	2	-34	-30	-0.5%	52	Sa, 10:15-10:30am	5%	92
86	Cape Coral-Fort Myers FL	**99**	86	66	43	27	1	2	3	9	11	-40	-90	-9.6%	2	F, 4:45-5:00am	5%	93
75	Bradenton-Sarasota-Venice FL	**100**	95	91	79	70	1	1	1	4	3	-30	-71	-2.3%	32	T, 3:00-3:15am	6%	90

Table 4: *Metropolitan Area Travel Time Tax Rankings*

Metropolitan Rankings

Employment Changes and Traffic

Congestion data indicates that both the recession and recovery has affected metropolitan areas differently and at different times. This report includes metropolitan area employment levels produced by the Bureau of Labor Statistics and presents changes in employment with changes in congestion. Each area has its detailed information in a new table on its summary page in Appendix A. Table 5 provides a national table of employment levels and traffic congestion.

Included in Table 5 are:

- **Metropolitan Area details and rankings**, including the population rank and the official Core Based Statistical Area (CBSA) name of the region, the 2010 overall congestion rank and the rank in terms of total employed in 2010.
- **Total Nonfarm Employed** at the end of each years 2006 through 2010, in thousands.
- **Comparisons of 2006 to 2010**, including gains/drops in employment levels in total and in percentages, the ranks of lost jobs, in absolute and percentage terms, and the analogous impact on congestion including the absolute gain/drop in Travel Time Tax and the relative rank of the gain/drop (the higher the rank, the larger the drop in T^3).
- **Employment comparisons of 2009 and 2010**, specifically the gains/drops in employment levels in total and in percentages.

Noteworthy Metropolitan Area Changes

While congestion was up 11% overall from 2009, the data shows this increase was not uniform across the country.

Overall Congestion Rankings

The ten most congested cities in 2009 remained in the top ten in 2010. San Francisco and Houston exchanged 6th and 7th places, with San Francisco moving up. Philadelphia and Seattle exchanged 9th and 10th places, with Philadelphia moving up. Note that New York has moved nearly even with Los Angeles for the top overall congestion rank—if 2010 trends continue into 2011, New York would pass Los Angeles.

70 of the 100 regions saw an increase in congestion in 2010 from 2009. Of the 33 most congested regions, only three regions saw declines in congestion—Chicago a small 1% drop, Miami (9%) and Phoenix (12%). In total, these 33 regions—that together account for more than 82% of the overall peak period congestion—

Metropolitan Rankings

CBSA	Rankings: CBSA Population	Rankings: 2010 Congestion	Rankings: 2010 Total Employed	Total Nonfarm Employed at End of Year (000): 2006	2007	2008	2009	2010	2006 to 2010 Comparions – Employment: Total Gained/Lost (000)	% Gained/Lost	Rank in Total Lost	Rank in % Lost	Travel Time Tax: T^3 Basis Points Gained (Dropped)	Rank in T^3 Drop	2009 to 2010 Employment: Total Gained/Lost (000)	% Gained/Lost
Total (Nationwide)				**136,873**	**137,951**	**134,328**	**129,588**	**130,712**	**-6,161**	**-4.5%**			**NM**		**1124.0**	**0.9%**
Total (Top 100 CBSAs)				**93,348**	**94,092**	**91,992**	**87,789**	**87,941**	**-5,408**	**-5.8%**			**-1.4%**		**151.8**	**0.2%**
Bradenton-Sarasota-Venice FL	75	98	84	313	296	264	247	249	-64	-20.4%	20	**1**	-2.3%	32	1.7	0.7%
Cape Coral-Fort Myers FL	86	100	93	239	228	209	197	196	-43	-18.1%	31	**2**	-9.6%	2	-0.8	-0.4%
Detroit-Warren-Livonia MI	11	22	14	2,015	1,969	1,852	1,721	1,697	-318	-15.8%	3	**3**	-0.6%	48	-24.0	-1.4%
Las Vegas-Paradise NV	30	35	35	937	933	900	811	798	-140	-14.9%	11	**4**	-2.7%	27	-13.1	-1.6%
Tampa-St. Petersburg-Clearwater FL	19	38	20	1,327	1,305	1,214	1,128	1,130	-197	-14.8%	7	**5**	-6.0%	10	1.8	0.2%
Riverside-San Bernardino-Ontario CA	14	17	22	1,296	1,273	1,196	1,115	1,106	-191	-14.7%	8	**6**	-9.1%	4	-9.3	-0.8%
Sacramento--Arden-Arcade--Roseville CA	25	21	33	914	910	867	818	800	-114	-12.5%	13	**7**	-2.4%	29	-17.7	-2.2%
Lakeland-Winter Haven FL	87	99	94	223	216	206	196	196	-28	-12.4%	46	**8**	-4.8%	16	-0.7	-0.4%
Toledo OH	79	93	73	336	331	313	298	295	-41	-12.2%	36	**9**	-1.2%	39	-2.6	-0.9%
Boise City-Nampa ID	85	83	85	279	279	264	252	248	-32	-11.3%	43	**10**	-0.7%	46	-4.0	-1.6%
Palm Bay-Melbourne-Titusville FL	97	96	95	218	213	203	195	193	-25	-11.3%	53	**11**	-0.5%	52	-2.2	-1.1%
Phoenix-Mesa-Scottsdale AZ	12	19	12	1,959	1,928	1,826	1,713	1,742	-217	-11.1%	6	**12**	-4.6%	18	28.8	1.7%
Miami-Fort Lauderdale-Pompano Beach FL	7	15	10	2,470	2,468	2,350	2,200	2,205	-265	-10.7%	5	**13**	-10.5%	1	4.8	0.2%
Youngstown-Warren-Boardman OH-PA	89	79	91	244	243	234	220	218	-26	-10.7%	50	**14**	0.3%	70	-2.4	-1.1%
Providence-New Bedford-Fall River RI-MA	37	49	47	592	586	562	536	532	-61	-10.2%	21	**15**	-2.9%	23	-4.3	-0.8%
Stockton CA	78	81	97	211	216	206	193	190	-22	-10.2%	57	**16**	-2.5%	28	-2.9	-1.5%
Dayton OH	61	70	58	411	406	392	371	370	-42	-10.1%	34	**17**	0.3%	72	-1.0	-0.3%
Oxnard-Thousand Oaks-Ventura CA	65	55	79	302	295	286	273	273	-30	-9.8%	45	**18**	-2.4%	30	-0.1	0.0%
Modesto CA	100	97	100	160	160	154	144	145	-16	-9.7%	68	**19**	-1.3%	38	0.5	0.3%
San Francisco-Oakland-Fremont CA	13	6	11	2,047	2,062	2,007	1,887	1,858	-189	-9.2%	9	**20**	-3.7%	21	-28.6	-1.5%
Los Angeles-Long Beach-Santa Ana CA	2	1	2	5,695	5,657	5,492	5,154	5,170	-525	-9.2%	1	**21**	-8.3%	5	16.7	0.3%
Memphis TN-MS-AR	41	60	41	648	655	634	595	590	-59	-9.0%	25	**22**	-2.8%	24	-5.7	-1.0%
Birmingham-Hoover AL	47	34	51	535	537	520	487	487	-48	-9.0%	30	**23**	1.7%	87	-0.5	-0.1%
Greensboro-High Point NC	71	82	63	373	378	361	342	340	-33	-8.8%	42	**24**	0.5%	74	-1.8	-0.5%
Jacksonville FL	40	58	43	639	637	613	586	584	-55	-8.5%	26	**25**	-6.5%	8	-1.5	-0.3%
Springfield MA	74	94	77	302	300	296	284	277	-25	-8.4%	52	**26**	-2.2%	34	-6.5	-2.3%
Chicago-Naperville-Joliet IL-IN-WI	3	3	3	4,573	4,597	4,489	4,239	4,199	-374	-8.2%	2	**27**	-3.8%	20	-40.5	-1.0%
Chattanooga TN-GA	98	72	88	249	250	246	226	230	-19	-7.8%	61	**28**	1.3%	81	3.4	1.5%
Grand Rapids-Wyoming MI	67	90	60	396	399	380	364	365	-31	-7.7%	44	**29**	-2.3%	33	1.2	0.3%
Orlando-Kissimmee FL	27	43	23	1,101	1,110	1,065	1,006	1,017	-84	-7.6%	16	**30**	-4.1%	19	11.1	1.1%
Akron OH	72	73	70	345	344	338	317	318	-26	-7.6%	49	**31**	-0.5%	51	1.5	0.5%
Fresno CA	54	78	76	304	307	299	282	281	-23	-7.5%	54	**32**	-0.4%	53	-1.5	-0.5%
Cleveland-Elyria-Mentor OH	26	31	24	1,081	1,075	1,042	990	1,001	-81	-7.5%	17	**33**	1.7%	86	11.2	1.1%
Portland-Vancouver-Beaverton OR-WA	23	20	26	1,036	1,056	1,028	965	961	-75	-7.2%	18	**34**	-3.5%	22	-4.6	-0.5%
Atlanta-Sandy Springs-Marietta GA	9	12	9	2,434	2,495	2,381	2,265	2,265	-169	-7.0%	10	**35**	-7.0%	7	-0.2	0.0%
Milwaukee-Waukesha-West Allis WI	39	33	34	858	861	842	799	799	-59	-6.9%	24	**36**	2.6%	98	-0.4	-0.1%
Tucson AZ	52	88	61	391	386	378	362	364	-27	-6.8%	47	**37**	-0.3%	55	2.2	0.6%
Worcester MA	64	75	87	252	251	247	237	235	-17	-6.8%	64	**38**	-2.8%	25	-1.9	-0.8%
San Diego-Carlsbad-San Marcos CA	17	13	18	1,314	1,320	1,292	1,219	1,225	-89	-6.7%	15	**39**	-5.9%	12	6.3	0.5%
Richmond VA	43	59	40	636	640	621	598	593	-43	-6.7%	32	**40**	0.2%	66	-5.1	-0.9%
Colorado Springs CO	83	85	86	261	264	256	247	244	-17	-6.5%	65	**41**	-4.8%	17	-2.6	-1.1%
Louisville/Jefferson County KY-IN	42	47	42	628	633	614	596	588	-40	-6.3%	37	**42**	-0.1%	59	-7.5	-1.3%
San Jose-Sunnyvale-Santa Clara CA	31	18	30	909	917	906	846	855	-54	-6.0%	27	**43**	-2.3%	31	8.5	1.0%
Minneapolis-St. Paul-Bloomington MN-WI	16	11	13	1,810	1,812	1,766	1,686	1,703	-107	-5.9%	14	**44**	2.2%	95	17.0	1.0%
Greenville-Mauldin-Easley SC	82	74	72	314	324	316	294	296	-19	-5.9%	63	**45**	2.1%	94	2.0	0.7%
Bakersfield CA	63	77	90	237	242	239	226	224	-14	-5.8%	73	**46**	0.1%	64	-2.5	-1.1%
Cincinnati-Middletown OH-KY-IN	24	29	25	1,048	1,055	1,038	997	988	-60	-5.8%	22	**47**	1.3%	80	-9.1	-0.9%
Albuquerque NM	57	61	57	397	398	396	381	375	-22	-5.5%	55	**48**	-0.9%	43	-5.3	-1.4%
Nashville-Davidson--Murfreesboro--Franklin TN	38	32	38	764	775	755	725	723	-42	-5.4%	35	**49**	-5.6%	13	-1.9	-0.3%
Columbia SC	69	69	62	368	374	364	347	348	-20	-5.4%	60	**50**	0.1%	61	1.5	0.4%
Bridgeport-Stamford-Norwalk CT	56	24	56	424	429	417	402	402	-22	-5.1%	56	**51**	-5.1%	15	0.6	0.1%
Kansas City MO-KS	29	28	27	1,008	1,024	1,018	975	956	-51	-5.1%	28	**52**	0.9%	79	-18.1	-1.9%
Wichita KS	84	76	75	301	309	313	288	287	-15	-4.8%	70	**53**	0.2%	69	-0.8	-0.3%
Portland-South Portland-Biddeford ME	99	95	98	197	198	194	188	188	-9	-4.8%	81	**54**	-0.9%	42	-0.5	-0.3%
St. Louis MO-IL	18	25	16	1,365	1,369	1,354	1,297	1,300	-65	-4.7%	19	**55**	-1.1%	40	2.8	0.2%
Philadelphia-Camden-Wilmington PA-NJ-DE-MD	5	9	6	2,843	2,856	2,804	2,711	2,712	-131	-4.6%	12	**56**	0.4%	73	1.5	0.1%
Columbus OH	32	41	28	947	961	942	904	904	-42	-4.5%	33	**57**	1.5%	84	0.5	0.1%
New Haven-Milford CT	60	46	80	281	283	279	268	268	-13	-4.5%	76	**58**	-1.4%	37	0.3	0.1%
Honolulu HI	55	37	53	465	464	454	443	445	-21	-4.4%	58	**59**	-6.1%	9	2.3	0.5%
Tulsa OK	53	48	55	431	428	440	411	412	-19	-4.4%	62	**60**	0.3%	71	0.7	0.2%
Harrisburg-Carlisle PA	96	54	69	334	333	329	320	319	-15	-4.4%	71	**61**	-0.1%	56	-1.1	-0.3%
Madison WI	88	65	64	354	352	345	337	339	-15	-4.3%	69	**62**	0.5%	75	1.9	0.6%
Virginia Beach-Norfolk-Newport News VA-NC	36	30	37	774	781	765	733	741	-33	-4.3%	41	**63**	1.4%	82	7.1	1.0%
Indianapolis-Carmel IN	34	44	29	911	928	905	867	872	-39	-4.3%	38	**64**	1.7%	85	5.1	0.6%
Salt Lake City UT	48	57	39	636	656	646	612	609	-26	-4.1%	48	**65**	-0.6%	49	-2.9	-0.5%
Knoxville TN	73	87	67	337	341	332	322	324	-13	-4.0%	74	**66**	-2.7%	26	1.6	0.5%
Poughkeepsie-Newburgh-Middletown NY	77	64	83	260	258	257	250	250	-10	-3.9%	80	**67**	1.9%	90	0.0	0.0%
Little Rock-North Little Rock-Conway AR	76	53	66	346	351	346	337	333	-13	-3.8%	75	**68**	0.6%	76	-3.9	-1.2%
Provo-Orem UT	91	66	99	187	196	190	181	181	-7	-3.6%	85	**69**	2.1%	93	-0.3	-0.2%
Allentown-Bethlehem-Easton PA-NJ	62	56	65	347	346	343	332	335	-12	-3.6%	77	**70**	-1.8%	36	2.1	0.6%
Jackson MS	94	86	82	265	265	260	253	255	-9	-3.6%	82	**71**	-0.9%	44	2.2	0.9%
New York-Northern New Jersey-Long Island NY-NJ	1	2	1	8,603	8,737	8,604	8,301	8,299	-305	-3.5%	4	**72**	2.5%	96	-2.3	0.0%
Seattle-Tacoma-Bellevue WA	15	10	15	1,723	1,768	1,741	1,647	1,663	-60	-3.5%	23	**73**	-9.2%	3	16.1	1.0%
Scranton--Wilkes-Barre PA	92	51	81	264	265	261	254	256	-8	-3.2%	84	**74**	2.6%	97	1.7	0.7%
Ogden-Clearfield UT	93	91	96	198	203	199	193	192	-6	-3.1%	86	**75**	-7.3%	6	-1.0	-0.5%
Charlotte-Gastonia-Concord NC-SC	33	36	32	837	873	848	806	811	-26	-3.1%	51	**76**	-5.3%	14	5.4	0.7%
Albany-Schenectady-Troy NY	58	80	54	453	454	451	443	439	-14	-3.1%	72	**77**	-0.8%	45	-4.2	-0.9%
Hartford-West Hartford-East Hartford CT	45	45	46	558	566	556	541	541	-17	-3.0%	66	**78**	0.1%	63	0.4	0.1%
Denver-Aurora-Broomfield CO	21	16	19	1,233	1,257	1,236	1,187	1,196	-37	-3.0%	40	**79**	-0.05%	60	8.4	0.7%
Baltimore-Towson MD	20	14	17	1,322	1,338	1,309	1,269	1,284	-38	-2.9%	39	**80**	3.2%	100	14.5	1.1%
Augusta-Richmond County GA-SC	95	92	92	216	219	215	210	211	-5	-2.1%	90	**81**	-0.5%	50	1.9	0.9%
Oklahoma City OK	44	39	44	578	575	580	560	565	-12	-2.1%	78	**82**	0.9%	78	5.6	1.0%
Rochester NY	51	63	49	521	523	523	508	510	-11	-2.1%	79	**83**	0.2%	68	2.5	0.5%
Boston-Cambridge-Quincy MA-NH	10	8	8	2,495	2,517	2,480	2,411	2,444	-51	-2.0%	29	**84**	0.2%	67	32.6	1.4%
Pittsburgh PA	22	23	21	1,149	1,156	1,146	1,120	1,129	-20	-1.8%	59	**85**	0.1%	65	9.1	0.8%
Syracuse NY	81	62	68	325	329	328	319	320	-5	-1.6%	88	**86**	1.9%	91	1.4	0.4%
Buffalo-Niagara Falls NY	50	50	45	552	556	556	541	543	-9	-1.6%	83	**87**	2.0%	92	2.0	0.4%
Des Moines-West Des Moines IA	90	89	71	318	326	324	314	314	-4	-1.2%	91	**88**	-1.0%	41	0.0	0.0%
Omaha-Council Bluffs NE-IA	59	68	52	465	471	472	456	460	-5	-1.1%	89	**89**	-0.1%	58	3.7	0.8%
Charleston-North Charleston-Summerville SC	80	67	74	291	300	296	283	289	-2	-0.6%	92	**90**	-5.9%	11	5.4	1.9%
Dallas-Fort Worth-Arlington TX	4	5	5	2,925	2,992	3,004	2,872	2,909	-16	-0.5%	67	**91**	0.6%	77	36.7	1.3%
Washington-Arlington-Alexandria DC-VA-MD-WV	8	4	4	3,013	3,028	3,015	2,950	3,007	-6	-0.2%	87	**92**	1.8%	88	57.5	1.9%
Baton Rouge LA	66	42	58	368	376	380	369	370	2	0.5%	93	**93**	1.4%	83	0.2	0.1%
Raleigh-Cary NC	49	52	50	496	529	517	499	500	4	0.8%	94	**94**	-0.3%	54	0.2	0.0%
Houston-Sugar Land-Baytown TX	6	7	7	2,509	2,609	2,628	2,530	2,543	34	1.4%	99	**95**	-0.1%	57	13.1	0.5%
El Paso TX	68	71	78	270	277	281	273	275	5	1.8%	95	**96**	2.8%	99	1.8	0.7%
San Antonio TX	28	27	31	824	845	857	832	839	15	1.9%	96	**97**	-0.7%	47	7.0	0.8%
Austin-Round Rock TX	35	26	36	740	771	783	759	774	34	4.6%	100	**98**	0.1%	62	15.2	2.0%
New Orleans-Metairie-Kenner LA	46	40	48	497	525	532	522	525	28	5.6%	98	**99**	-2.0%	35	3.5	0.7%
McAllen-Edinburg-Mission TX	70	84	89	207	214	222	220	225	18	8.6%	97	**100**	1.8%	89	4.9	2.2%

Table 5: *Employment and Traffic Changes, 2006 to 2010*

Metropolitan Rankings

show congestion is clearly on the rebound in larger areas. When comparing 2010 to 2006, 41 regions are back to or above 2006 congestion levels, with Baltimore seeing the largest absolute increase in T^3 of 3.2 percentage points.

Travel Time Tax Rankings

Overall Los Angeles increased its lead on Honolulu with the nation's highest peak period Travel Time Tax of 35.4%. 2009's top ten stayed in the top ten in 2010, though the 3rd/4th, 5th/6th, 7th/8th and 9th/10th ranked areas exchanged places. None of top ten moved up or down more than a single place. Just outside the top ten saw larger jumps as 11th (Portland, up from 14th), 12th (San Diego, up from 19th) and 13th (Minneapolis, up from 15th) all moved up multiple spots. The largest drop near the top of the list was Miami, from 12th in 2009 to 22nd in 2010. Only three of the top 38 saw declines in their T^3 from 2009 to 2010—Chicago, Miami and Baton Rouge.

Employment Impacts

This report provides the first linkage of employment numbers and congestion at regional levels. The numbers are staggering and the impacts are clear. More than seven out of eight jobs lost nationwide between the end of 2006 and the end of 2010 were lost in the top 100 metropolitan areas. The roughly 200 million people living in these regions had 5.4 million less jobs than four years prior, while the 110 million living outside these large urban areas lost only 700,000 net jobs. From 2009 to 2010, the nation as a whole gained more than 1.1 million of the jobs lost in recent years, but only 150,000 of those nets gains occurred in these top 100 regions.

While better roads and better operations may be improving situations in some regions and at the margins, employment gains and losses are the primary cause of congestion changes. Since conservatively 75% of people drive—alone—to work,[11] every 10,000 net jobs added/lost, adds/removes 15,000 daily work commute trips in a region on average. Using the Chicago area as an example, with a net loss of 374,000 jobs since the end of 2006, roughly one-half MILLION less work trips a day are being taken in the region. As a result, the Travel Time Tax has dropped from 20.4% to 16.6%, the 20th largest absolute drop in the nation.

Since 2006, 27 regions lost 8% or more of their jobs, and all but four also had decreases in congestion. Further, only six of these hardest hit communities saw an increase in congestion from 2009 to 2010. Of the five regions with the biggest absolute drop in congestion from 2006 to 2010, only Seattle had a below average loss in jobs (3.5% drop), while the others—Los Angeles, Riverside, Miami and Cape Coral/Ft. Myers—had net job loss ranging from 9.2% to 10.5%.

[11] See http://www.census.gov/compendia/statab/cats/transportation.html, table 1099.

Metropolitan Rankings

Overall Congestion and Travel Time Tax (T^3)

What's the Difference?

Overall congestion quantifies and ranks the total congestion in a region

- Larger regions tend to have more roads and more locations where congestion occurs, hence more overall congestion.

Travel Time Tax equalizes all regions by dividing out the difference in the size of each region's road network – giving a more driver centric view of congestion.

- For example, Los Angeles and Honolulu have nearly the same Travel Time Tax – this implies that an average commuter in both cities faces similar delays.
- However, Los Angeles has almost 15 times more people and 20 times more road miles of major highways.
- So at a system level, LA has much more overall congestion while individuals in both regions each face similar congestion levels.

An analogy is power consumption – the amount of power consumed in each home is similar to the Travel Time Tax, while the amount of total power consumed in a region is similar to overall congestion. Both measures – power used in each home (T^3) and power used overall in the region (overall congestion) – are relevant and thus measured.

Congested Corridors and Bottlenecks

From the initial Scorecard, INRIX has analyzed road segments in detail to determine the specific location of chronic congestion on the major highways of the United States. This Annual Report continues to analyze these "bottlenecks" while adding an important new advance—turning adjacent congested road segments "congested corridors." This allows for direct comparisons between corridors in terms of travel time delays—providing a direct measurement of the most tangible and frustrating impact of bottlenecks. INRIX continues to analyze essentially the nation's entire limited access road network, in more than 48,000 unique segments spanning more than 110,000 miles. Figure 11 shows the roads analyzed, with the nation's congested corridors in red and smaller non-corridor bottlenecks in yellow.

Figure 11: Nation's Congested Corridors (in Red) and Worst Bottlenecks (in Yellow) for 2010

Nation's Most Congested Corridors

The methodology section describes in detail the process used to identify congested corridors and how rankings are calculated. To be considered a corridor, recurring congestion had to occur on multiple road segments

Congested Corridors and Bottlenecks

totaling at least three miles in length—stretches of congestion less than three miles long are still included in the bottlenecks analysis, but not long enough to be considered corridors. In total, there were 341 congested corridors nationwide in 2010, totaling a collective 2295 miles in length. On average, these corridors were 6.7 miles in length, took 15 minutes to travel in their peak period with 8 minutes of delay (a travel time tax of 113%); in their worst hours, these corridors took 21 minutes to traverse with 14 minutes of delay (a travel time tax of 224%).

Like overall congestion, most of these corridors are located in the largest, most congested cities. Table 6 lists the regions with the most congested corridors, with 29 of the 50 worst corridors located in Los Angeles, New York and Chicago. Table 7 details the 50 worst corridors nationwide. These corridors averaged 9.5 miles in length, took 30 minutes to traverse in their peak periods (20 minutes of delay, and a 196% travel time tax), and at their worst took a whopping 45 minute travel time on average (35 minutes of delay and a 341% travel time tax).

Pop Rank	CBSA	Congestion Rank	Congested Corridors			
			Total	Top 100	Top 50	Top 25
2	Los Angeles-Long Beach-Santa Ana CA	1	**45**	24	16	7
1	New York-Northern New Jersey-Long Island NY-NJ-PA	2	**39**	14	8	6
4	Dallas-Fort Worth-Arlington TX	5	**20**	5	1	0
6	Houston-Sugar Land-Baytown TX	7	**17**	7	1	0
13	San Francisco-Oakland-Fremont CA	6	**16**	7	3	0
3	Chicago-Naperville-Joliet IL-IN-WI	3	**15**	8	5	4
15	Seattle-Tacoma-Bellevue WA	10	**15**	2	0	0
8	Washington-Arlington-Alexandria DC-VA-MD-WV	4	**14**	6	3	2
10	Boston-Cambridge-Quincy MA-NH	8	**13**	3	2	1
9	Atlanta-Sandy Springs-Marietta GA	12	**11**	2	0	0
16	Minneapolis-St. Paul-Bloomington MN-WI	11	**11**	2	0	0
	Other Areas		**125**	20	11	5
	Total		**341**	**100**	**50**	**25**

Table 6: Congested Corridors for Each CBSA

Congested Corridors and Bottlenecks

National Rank	CBSA (Pop Rank)	Road(s)	From	To	Corridor Length (Miles)	Free Flow Travel Time (Mins)	Peak Period				Worst Hour			
							Worst Peak	Travel Time (Mins)	Delay (Mins)	Travel Time Tax (%)	Worst Hour	Travel Time (Mins)	Delay (Mins)	Travel Time Tax (%)
1	New York (1)	I-95 SB (NE Thwy, Bruckner/Cross Bronx Expys)	CONNER ST/EXIT 13	HUDSON TER	11.3	13	PM	43	**30**	**231%**	F, 4-5pm	63	50	387%
2	Los Angeles (2)/Riverside (14)	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	20	PM	57	**37**	**183%**	F, 4-5pm	81	60	302%
3	Los Angeles (2)	San Diego Fwy/I-405 NB	I-105/IMPERIAL HWY	GETTY CENTER DR	13.1	13	PM	41	**28**	**224%**	F, 4-5pm	53	40	318%
4	Chicago (3)	I-90/I-94 EB (Kennedy/Dan Ryan Expys)	I-294/TRI STATE TOLLWAY	RUBLE ST/EXIT 52B	15.9	17	PM	49	**32**	**195%**	F, 5-6pm	72	56	338%
5	Los Angeles (2)	Santa Monica Fwy/I-10 EB	CA-1/LINCOLN BLVD/EXIT 1B	ALAMEDA ST	14.9	14	PM	42	**28**	**192%**	Th, 6-7pm	49	35	244%
6	New York (1)	Long Island Expy/I-495 EB	MAURICE AVE/EXIT 18	MINEOLA AVE/WILLIS AVE/EXIT 37	16.0	16	PM	45	**29**	**176%**	F, 4-5pm	53	37	226%
7	Los Angeles (2)	I-5 SB (Santa Ana/Golden St Fwys)	EAST CEASAR CHAVEZ AVE	VALLEY VIEW AVE	17.5	18	PM	47	**30**	**167%**	F, 5-6pm	63	45	255%
8	New York (1)	I-278 WB (Brooklyn Queens/Gowanus Expy)	NY-25A/NORTHERN BLVD/EXIT 41	NY-27/PROSPECT EXPY/EXIT 24	10.2	12	PM	37	**24**	**197%**	Th, 5-6pm	45	33	264%
9	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	LYDIA ST/EXIT 2	US-19 TK RT/PA-51/EXIT 5	3.4	4	AM	17	**13**	**348%**	W, 8-9am	24	21	554%
10	Los Angeles (2)	San Bernadino Fwy/I-10 EB	CITY TERRACE DR/HERBERT AVE	BALDWIN PARK BLVD	12.8	13	PM	37	**24**	**188%**	F, 5-6pm	45	32	253%
11	Chicago (3)	I-90/I-94 WB (Dan Ryan/Kennedy Expys)	PERSHING RD/EXIT 55B	SAYRE AVE/EXIT 81B	15.4	16	PM	43	**27**	**167%**	Th, 5-6pm	62	46	284%
12	Los Angeles (2)	San Diego Fwy/I-405 SB	NORDHOFF ST	MULHOLLAND DR	8.1	8	AM	26	**18**	**225%**	T, 8-9am	35	27	331%
13	New York (1)	Van Wyck Expy/I-678 SB	HORACE HARDING EXPY/EXIT 12A	LINDEN BLVD/EXIT 3	6.2	7	PM	24	**17**	**242%**	Th, 4-5pm	30	23	332%
14	Washington, DC (8)	I-95 SB	I-395	RUSSELL RD/EXIT 148	23.9	23	PM	52	**29**	**129%**	F, 4-5pm	86	63	275%
15	Chicago (3)	Eisenhower Expy/I-290 EB	IL-72/HIGGINS RD/EXIT 1	AUSTIN BLVD/EXIT 23A	21.5	22	PM	51	**28**	**127%**	F, 5-6pm	70	47	213%
16	Los Angeles (2)	Pomona Fwy/CA-60 EB	WHITTIER BLVD	BREA CANYON RD	21.7	22	PM	50	**28**	**128%**	F, 5-6pm	61	39	178%
17	Austin (35)	I-35 SB	US-183/EXIT 239-240	WOODLAND AVE	6.7	7	PM	22	**15**	**226%**	F, 5-6pm	36	29	427%
18	Baton Rouge (66)	I-12 EB	ESSEN LN	O'NEAL LN	5.8	6	PM	20	**14**	**243%**	T, 5-6pm	29	24	410%
19	Washington, DC (8)	Capital Beltway/I-495 Inner Loop	I-95/I-395/EXIT 57	MD-650/NEW HAMPSHIRE AVE/EXIT28	20.7	20	PM	47	**26**	**129%**	F, 4-5pm	68	47	233%
20	Boston (10)	Southeast Expy/I-93 NB	MA-28/RANDOLPH AVE/EXIT 5	COLUMBIA RD/EXIT 15	10.4	10	AM	29	**19**	**179%**	W, 8-9am	38	27	259%
21	Portland, OR (23)	I-5 NB	CORBETT AVE/EXIT 298	N TOMAHAWK ISLAND DR/EXIT 308	10.1	11	PM	30	**19**	**174%**	F, 4-5pm	40	29	266%
22	New York (1)	Van Wyck Expy/I-678 NB	BELT PKWY/EXIT 1	MAIN ST/EXIT 8	3.1	3	PM	13	**10**	**298%**	M, 7-8am	18	14	424%
23	Chicago (3)	Stevenson Expy/I-55 SB	STATE ST/EXIT 293C	PULASKI RD/EXIT 287	5.7	6	PM	19	**13**	**225%**	F, 4-5pm	28	22	373%
24	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 WB	US-22 BUS/EXIT 10	SQUIRREL HILL TUNL	5.3	6	AM	19	**13**	**223%**	T, 7-8am	29	23	391%
25	New York (1)	Long Island Expy/I-495 WB	GLEN COVE RD/EXIT 39	WOODHAVEN BLVD	14.9	15	AM	35	**20**	**137%**	Th, 8-9am	46	31	205%
26	Honolulu (55)	Lunalilo Fwy/I-1 EB	HI-92	S VINEYARD BLVD/WARD AVE	3.9	5	PM	16	**11**	**244%**	Th, 5-6pm	21	17	356%
27	San Francisco (13)	California Delta Hwy/CA-4 WB	HILLCREST AVE	SOMERSVILLE RD	3.0	3	AM	11	**9**	**318%**	W, 7-8am	17	14	526%
28	Washington, DC (8)	Capital Beltway/I-495 Outer Loop	US-1/BALTIMORE AVE/EXIT 25	MD-97/GEORGIA AVE/EXIT 31	6.3	6	AM	19	**13**	**210%**	Th, 8-9am	29	23	372%
29	Boston (10)	I-93 SB	I-95/MA-128/EXIT 37	US-1/EXIT 27	9.8	10	AM	26	**16**	**164%**	Th, 8-9am	39	29	298%
30	Los Angeles (2)	Santa Monica Fwy/I-10 WB	I-5/GOLDEN STATE FWY	NATIONAL BLVD	12.6	12	AM	30	**18**	**146%**	Th, 6-7pm	43	31	257%
31	Los Angeles (2)	US-101 NB (Santa Ana/Hollywood Fwys)	I-5/CA-60	HASKELL AVE	21.5	22	PM	46	**24**	**108%**	Th, 5-6pm	59	37	168%
32	Los Angeles (2)	Century Fwy/I-105 EB	NASH ST	I-605	17.6	17	PM	37	**21**	**124%**	Th, 5-6pm	46	29	175%
33	Los Angeles (2)	Harbor Fwy/CA-110 NB	I-10/SANTA MONICA FWY	STADIUM WAY/EXIT 24C	3.1	3	PM	12	**9**	**290%**	W, 5-6pm	16	13	435%
34	Los Angeles (2)	Foothill Fwy/I-210 EB	LINCOLN AVE	CA-39/AZUSA AVE	17.2	17	PM	38	**21**	**121%**	F, 4-5pm	56	38	222%
35	New York (1)	I-278 EB (Gowanus Expy/Brooklyn Queens)	92ND ST/EXIT 17	APOLLO ST/MEEKER AVE/EXIT 34	11.6	14	AM	33	**19**	**134%**	W, 8-9am	41	27	196%
36	Chicago (3)	Edens Expy/I-94 EB	TOWER RD/EXIT 31	I-90/KENNEDY EXPY	11.0	11	PM	27	**16**	**151%**	F, 5-6pm	44	33	303%
37	San Francisco (13)	California Delta Hwy/CA-4 EB	BAILEY RD	SOMERSVILLE RD	5.8	5	PM	17	**12**	**210%**	F, 5-6pm	20	15	269%
38	Los Angeles (2)	Orange Fwy/CA-57 NB	I-5/CA-22/CHAPMAN AVE (ORANGE)	CA-60/POMONA FWY	14.7	14	PM	32	**18**	**131%**	F, 5-6pm	48	34	244%
39	Austin (35)	I-35 NB	SHELBY LN/ST ELMO RD/EXIT 230	MARTIN LUTHER KING BLVD/19TH ST/EXIT 235	4.7	5	PM	15	**11**	**223%**	Th, 5-6pm	26	21	440%
40	Los Angeles (2)	US-101 SB (Ventura/Hollywood Fwys)	VENTURA BLVD/SHOUP AVE	VIGNES ST/EXIT 2B	26.7	26	AM	51	**25**	**95%**	W, 8-9am	68	42	161%
41	Bridgeport, CT (56)	Connecticut Turnpike/I-95 NB	FIELD POINT RD	MILL PLAIN RD/EXIT 21	22.2	21	PM	44	**22**	**104%**	F, 5-6pm	63	41	194%
42	Dallas- Fort Worth (4)	North Fwy/I-35W NB	ROSEDALE ST/EXIT 49B	WESTERN CENTER BLVD/EXIT 58	9.5	9	PM	24	**15**	**157%**	F, 5-6pm	37	28	298%
43	San Francisco (13)	I-580 EB	EDEN CANYON RD	EL CHARRO RD/FALLON RD	9.6	9	PM	23	**14**	**152%**	F, 4-5pm	39	30	322%
44	Miami (7)	Dolphin Expy/SR 836 WB	I-95	FL-959/RED RD	5.5	6	PM	17	**11**	**188%**	Th, 5-6pm	22	16	271%
45	Los Angeles (2)	I-5 NB (Santa Ana/Golden St Fwys)	CA-39/BEACH BLVD	RIVERSIDE DR	22.5	23	PM	44	**21**	**95%**	T, 8-9am	62	40	176%
46	New York (1)	Grand Central Pkwy EB	I-278	I-295/NY-25/EXIT 21	10.6	11	PM	26	**15**	**133%**	F, 3-4pm	30	19	173%
47	Houston (6)	US-59 NB (Southwest/Eastex Fwys)	BUFFALO SPEEDWAY	I-45	4.8	5	PM	14	**10**	**202%**	F, 4-5pm	24	19	409%

***Table 7:** Top 50 Congested Corridors, Nationwide*

SCG Doc#260049 EF-A39

Congested Corridors and Bottlenecks

The characteristics of the congested corridors vary widely. Some corridors are lengthy and accumulate long delays from slow but moving traffic (e.g., 30 MPH), while others are shorter in length, but suffer from extremely heavy slowdowns (e.g ., 10 MPH) over their shorter length. To factor in both the length of delays and their intensity, the overall ranking of corridors is based on the combination of total delay and travel time tax. It is possible to identify and rank corridors based on single criteria (e.g., delay, Travel Time Tax, worst hour conditions, etc.) as well. Tables 8–12 show the nation's "top ten" corridors based on different criteria. Regardless of how calculated, someone who regular uses any of these corridors in peak periods will certainly feel extreme inconvenience and well above average impacts as compared to the rest of the nation's highway users. In essence, these corridors are ground zero of the nation's fight against congestion. In future reports, as in other areas, year to year changes and trends will be tracked.

Rank								Travel Time		
Peak Delay	Overall	CBSA (Pop Rank)	Road(s)	From	To	Length (Miles)	Peak (AM or PM)	Free Flow (Mins)	Peak Average (Mins)	Peak Delay (Mins)
1	2	Los Angeles (2)/Riverside (14)	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	PM	20	57	**37**
2	4	Chicago (3)	I-90/I-94 EB (Kennedy/Dan Ryan Expys)	I-294/TRI STATE TOLLWAY	RUBLE ST/EXIT 52B	15.9	PM	17	49	**32**
3	1	New York (1)	I-95 SB (NE Thwy, Bruckner/Cross Bronx Expys)	CONNER ST/EXIT 13	HUDSON TER	11.3	PM	13	43	**30**
4	7	Los Angeles (2)	I-5 SB (Santa Ana/Golden St Fwys)	EAST CEASAR CHAVEZ AVE	VALLEY VIEW AVE	17.5	PM	18	47	**30**
5	14	Washington, DC (8)	I-95 SB	I-395	RUSSELL RD/EXIT 148	23.9	PM	23	52	**29**
6	6	New York (1)	Long Island Expy/I-495 EB	MAURICE AVE/EXIT 18	MINEOLA AVE/WILLIS AVE/EXIT 37	16.0	PM	16	45	**29**
7	15	Chicago (3)	Eisenhower Expy/I-290 EB	IL-72/HIGGINS RD/EXIT 1	AUSTIN BLVD/EXIT 23A	21.5	PM	22	51	**28**
8	3	Los Angeles (2)	San Diego Fwy/I-405 NB	I-105/IMPERIAL HWY	GETTY CENTER DR	13.1	PM	13	41	**28**
9	16	Los Angeles (2)	Pomona Fwy/CA-60 EB	WHITTIER BLVD	BREA CANYON RD	21.7	PM	22	50	**28**
10	5	Los Angeles (2)	Santa Monica Fwy/I-10 EB	CA-1/LINCOLN BLVD/EXIT 1B	ALAMEDA ST	14.9	PM	14	42	**28**

Table 8: *Congested Corridors with Longest Peak Period Delay, 2010*

Rank								Travel Time		
Peak Travel Time Tax	Overall	CBSA (Pop Rank)	Road(s)	From	To	Length (Miles)	Peak (AM or PM)	Free Flow (Mins)	Peak Average (Mins)	Peak Travel Time Tax (%)
1	9	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	LYDIA ST/EXIT 2	US-19 TK RT/PA-51/EXIT 5	3.4	AM	4	17	**348%**
2	27	San Francisco (13)	California Delta Hwy/CA-4 WB	HILLCREST AVE	SOMERSVILLE RD	3.0	AM	3	11	**318%**
3	22	New York (1)	Van Wyck Expy/I-678 NB	BELT PKWY/EXIT 1	MAIN ST/EXIT 8	3.1	PM	3	13	**298%**
4	33	Los Angeles (2)	Harbor Fwy/CA-110 NB	I-10/SANTA MONICA FWY	STADIUM WAY/EXIT 24C	3.1	PM	3	12	**290%**
5	26	Honolulu (55)	Lunalilo Fwy/I-1 EB	HI-92	S VINEYARD BLVD/WARD AVE	3.9	PM	5	16	**244%**
6	18	Baton Rouge (66)	I-12 EB	ESSEN LN	O'NEAL LN	5.8	PM	6	20	**243%**
7	13	New York (1)	Van Wyck Expy/I-678 SB	HORACE HARDING EXPY/EXIT 12A	LINDEN BLVD/EXIT 3	6.2	PM	7	24	**242%**
8	51	San Francisco (13)	Grove Shafter Fwy/CA-24 WB	SAINT STEPHENS DR	CALDECOTT TUNNEL	3.5	PM	3	11	**233%**
9	1	New York (1)	I-95 SB (NE Thwy, Bruckner/Cross Bronx Expys)	CONNER ST/EXIT 13	HUDSON TER	11.3	PM	13	43	**231%**
10	17	Austin (35)	I-35 SB	US-183/EXIT 239-240	WOODLAND AVE	6.7	PM	7	22	**226%**

Table 9: *Congested Corridors with Highest Peak Period Travel Time Tax, 2010*

Congested Corridors and Bottlenecks

Rank								Travel Time			
Worst Hour	Overall	CBSA (Pop Rank)	Road(s)	From	To	Length (Miles)	Worst Hour	Free Flow (Mins)	Worst Hour Average (Mins)	Worst Hour Delay (Mins)	Worst Hour Travel Time Tax (%
1	1	New York (1)	I-95 SB (NE Thwy, Bruckner/Cross Bronx Expys)	CONNER ST/EXIT 13	HUDSON TER	11.3	F, 4-5pm	13	63	**50**	**387%**
2	4	Chicago (3)	I-90/I-94 EB (Kennedy/Dan Ryan Expys)	I-294/TRI STATE TOLLWAY	RUBLE ST/EXIT 52B	15.9	F, 5-6pm	17	72	**56**	**338%**
3	2	Los Angeles (2)/Riverside (14)	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	F, 4-5pm	20	81	**60**	**302%**
4	14	Washington, DC (8)	I-95 SB	I-395	RUSSELL RD/EXIT 148	23.9	F, 4-5pm	23	86	**63**	**275%**
5	77	New York (1)	I-95 NB (Cross Bronx/Bruckner Expys)	I-80/NJ TPKE	PELHAM PKWY/EXIT 8	11.5	Su, 4-5pm	13	59	**46**	**341%**
6	11	Chicago (3)	I-90/I-94 WB (Dan Ryan/Kennedy Expys)	PERSHING RD/EXIT 55B	SAYRE AVE/EXIT 81B	15.4	Th, 5-6pm	16	62	**46**	**284%**
7	3	Los Angeles (2)	San Diego Fwy/I-405 NB	I-105/IMPERIAL HWY	GETTY CENTER DR	13.1	F, 4-5pm	13	53	**40**	**318%**
8	17	Austin (35)	I-35 SB	US-183/EXIT 239-240	WOODLAND AVE	6.7	F, 5-6pm	7	36	**29**	**427%**
9	7	Los Angeles (2)	I-5 SB (Santa Ana/Golden St Fwys)	EAST CEASAR CHAVEZ AVE	VALLEY VIEW AVE	17.5	F, 5-6pm	18	63	**45**	**255%**
10	9	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	LYDIA ST/EXIT 2	US-19 TK RT/PA-51/EXIT 5	3.4	W, 8-9am	4	24	**21**	**554%**

***Table 10:** Congested Corridors Ranked by Worst Hour of Week Only*

Rank								Travel Time		
Worst Hour Delay	Overall	CBSA (Pop Rank)	Road(s)	From	To	Length (Miles)	Worst Hour	Free Flow (Mins)	Worst Hour Average (Mins)	Worst Hour Delay (Mins)
1	14	Washington, DC (8)	I-95 SB	I-395	RUSSELL RD/EXIT 148	23.9	F, 4-5pm	23	86	**63**
2	2	Los Angeles (2)/Riverside (14)	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	F, 4-5pm	20	81	**60**
3	4	Chicago (3)	I-90/I-94 EB (Kennedy/Dan Ryan Expys)	I-294/TRI STATE TOLLWAY	RUBLE ST/EXIT 52B	15.9	F, 5-6pm	17	72	**56**
4	1	New York (1)	I-95 SB (NE Thwy, Bruckner/Cross Bronx Expys)	CONNER ST/EXIT 13	HUDSON TER	11.3	F, 4-5pm	13	63	**50**
5	19	Washington, DC (8)	Capital Beltway/I-495 Inner Loop	I-95/I-395/EXIT 57	MD-650/NEW HAMPSHIRE AVE/EXIT28	20.7	F, 4-5pm	20	68	**47**
6	15	Chicago (3)	Eisenhower Expy/I-290 EB	IL-72/HIGGINS RD/EXIT 1	AUSTIN BLVD/EXIT 23A	21.5	F, 5-6pm	22	70	**47**
7	11	Chicago (3)	I-90/I-94 WB (Dan Ryan/Kennedy Expys)	PERSHING RD/EXIT 55B	SAYRE AVE/EXIT 81B	15.4	Th, 5-6pm	16	62	**46**
8	77	New York (1)	I-95 NB (Cross Bronx/Bruckner Expys)	I-80/NJ TPKE	PELHAM PKWY/EXIT 8	11.5	Su, 4-5pm	13	59	**46**
9	7	Los Angeles (2)	I-5 SB (Santa Ana/Golden St Fwys)	EAST CEASAR CHAVEZ AVE	VALLEY VIEW AVE	17.5	F, 5-6pm	18	63	**45**
10	40	Los Angeles (2)	US-101 SB (Ventura/Hollywood Fwys)	VENTURA BLVD/SHOUP AVE	VIGNES ST/EXIT 2B	26.7	W, 8-9am	26	68	**42**

***Table 11:** Congested Corridors with Longest Worst Hour Delay, 2010*

Rank								Travel Time		
Worst Hour Travel Time Tax	Overall	CBSA (Pop Rank)	Road(s)	From	To	Length (Miles)	Worst Hour	Free Flow (Mins)	Worst Hour Average (Mins)	Worst Hour Travel Time Tax (%)
1	9	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	LYDIA ST/EXIT 2	US-19 TK RT/PA-51/EXIT 5	3.4	W, 8-9am	4	24	**554%**
2	27	San Francisco (13)	California Delta Hwy/CA-4 WB	HILLCREST AVE	SOMERSVILLE RD	3.0	W, 7-8am	3	17	**526%**
3	61	New York (1)	Harlem River Dr NB	WILLIS AVENUE BRG/EXIT 18	I-95/AMSTERDAM AVE/EXIT 23	3.2	F, 4-5pm	4	22	**503%**
4	221	Norfolk, VA (36)	Hampton Roads Beltway/I-64 EB	RIP RAP RD/EXIT 265	HAMPTON ROADS BRG TUNL(HAMPTON)	3.1	Su, 11-12am	3	19	**503%**
5	39	Austin (35)	I-35 NB	SHELBY LN/ST ELMO RD/EXIT 230	MARTIN LUTHER KING BLVD/19TH ST/EXIT 235	4.7	Th, 5-6pm	5	26	**440%**
6	213	Cincinnati-Middletown OH-KY-IN	I-75 SB	I-74/US-52/US-27/EXIT 4	W 7TH ST/EXIT 1	3.4	F, 5-6pm	3	19	**440%**
7	33	Los Angeles (2)	Harbor Fwy/CA-110 NB	I-10/SANTA MONICA FWY	STADIUM WAY/EXIT 24C	3.1	W, 5-6pm	3	16	**435%**
8	17	Austin (35)	I-35 SB	US-183/EXIT 239-240	WOODLAND AVE	6.7	F, 5-6pm	7	36	**427%**
9	22	New York (1)	Van Wyck Expy/I-678 NB	BELT PKWY/EXIT 1	MAIN ST/EXIT 8	3.1	M, 7-8am	3	18	**424%**
10	18	Baton Rouge (66)	I-12 EB	ESSEN LN	O'NEAL LN	5.8	T, 5-6pm	6	29	**410%**

***Table 12:** Congested Corridors with Highest Worst Hour Travel Time Tax, 2010*

Congested Corridors and Bottlenecks

Bottlenecks

Along with the new corridors, this Annual Report continues to analyze and document the performance of specific road segments, identifying and documenting those that exhibit recurring congestion as "bottlenecks." Many—but not all—of these bottlenecks are subsumed in the 341 corridors. Still, analysis of segments both within and outside congested corridors is instructive particularly this year to see how and where congestion is returning the quickest to its pre-recession trajectories.

Top 100 Bottlenecks

The nation's worst 100 bottlenecks for 2010 are listed in Tables 13 and 14. A central theme of this year's bottleneck analysis is that if congestion is up on America's main roads in 2010, it is WAY UP in its most congested spots. Overall, the Top 100 bottlenecks had a length-weighted average of more than 78 hours of congestion each week, up 39% from 2009 (58 hours) and by far the highest level recorded.

The nation's worst bottleneck has remained unchanged since 2007: The Cross Bronx Expressway/I-95 SB in the Bronx leading up to and including the Bronx River Parkway exit 4B interchange. This 0.35 miles long segment was congested an astounding 116 hours each week on average (more than 16 hours each day of the week!), with an average speed of just 11.3 MPH during those 116 hours. In 2009, this bottleneck was congested "only" 94 hours of the week, with an average speed of 11.4 in those hours. Big increases in duration of congestion from 2009 to 2010 is consistent for the top bottlenecks, in most cases, these are the worst levels of congestion since the scorecard began, topping even the overall peak congestion year of 2007.

35 segments in the Top 100 were not in the Top 100 in 2009—though all registered at least some congestion in 2009. The segment highest up the Top 100 list in 2010 that was outside the Top 100 in 2009 was a segment of the Kennedy Expressway/I-90/I-94 WB in Chicago leading up to and including Lake Street/Exit 51C. This 0.43 mile segment moved from 165th worst in 2009 to 17th in 2010.

The highest ranking bottleneck to drop from the Top 100 between 2009 and 2010 was in the New Haven, CT area, where the multi-year construction project around the I-91/I-95 interchange (known as the I-95 New Haven Crossing Corridor Improvement Program) has elevated the section of I-91 SB that approached Hamilton Street/Exit 2 into the top 100 in 2008 and 2009. In April 2010, a second lane of the interchange ramp from I-91 SB to I-95 SB was opened, more than two years ahead of schedule as a result of a project modifications made by Connecticut DOT.[12] As a result, the 6th worst segment in 2009, just upstream on I-91 from that ramp, dropped to 462nd in 2010.

[12] http://i95newhaven.com/pdfs/contracts/q%20bridge%20newsletter%20v1%20i2_summer%202010.pdf

Congested Corridors and Bottlenecks

2010 Rank	2009 Rank	CBSA (Pop Rank)	Road/Direction	Segment/Interchange	County	ST	Length (Miles)	Hours of Congestion	Average Speed when Congested (MPH)
1	1	New York (1)	Cross Bronx Expy WB/I-95 SB	BRONX RIVER PKWY/EXIT 4B	Bronx	NY	0.35	116	11.3
2	20	New York (1)	I-95 NB	US-9/US-1/US-46/EXIT 72	Bergen	NJ	0.42	109	9.2
3	2	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	CANALPORT AVE/CERMAK RD/EXIT 53	Cook	IL	0.40	105	11.3
4	3	New York (1)	Cross Bronx Expy WB/I-95 SB	I-895/SHERIDAN EXPY/EXIT 4A	Bronx	NY	0.51	133	13.0
5	4	New York (1)	Cross Bronx Expy WB/I-95 SB	WHITE PLAINS RD/EXIT 5	Bronx	NY	0.28	105	12.1
6	5	New York (1)	Harlem River Dr SB	3RD AVE	New York	NY	0.16	98	10.6
7	10	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	RUBLE ST/EXIT 52B	Cook	IL	0.12	115	14.5
8	8	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	18TH ST/EXIT 52C	Cook	IL	0.41	107	13.4
9	9	New York (1)	Cross Bronx Expy WB/I-95 SB	WESTCHESTER AVE/EXIT 5	Bronx	NY	1.15	91	11.7
10	11	Los Angeles (2)	Hollywood Fwy/US-101 SB	VERMONT AVE	Los Angeles	CA	0.62	117	16.7
11	85	Los Angeles (2)	San Diego Fwy/I-405 NB	I-10/SANTA MONICA FWY	Los Angeles	CA	1.23	91	14.1
12	14	New York (1)	Harlem River Dr SB	2ND AVE/125TH ST/EXIT 19	New York	NY	0.22	110	13.0
13	67	Chicago (3)	Kennedy Expy/I-90/I-94 EB	OHIO ST/EXIT 50B	Cook	IL	0.38	100	14.2
14	13	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	ROOSEVELT RD	Cook	IL	0.22	111	16.4
15	17	New York (1)	Van Wyck Expy/I-678 NB	HILLSIDE AVE/EXIT 6	Queens	NY	0.12	103	15.2
16	15	New York (1)	Van Wyck Expy/I-678 NB	LIBERTY AVE/EXIT 4	Queens	NY	0.52	86	12.8
17	165	Chicago (3)	Kennedy Expy/I-90/I-94 EB	LAKE ST/EXIT 51A	Cook	IL	0.43	107	15.3
18	12	Los Angeles (2)	Hollywood Fwy/US-101 NB	ALAMEDA ST	Los Angeles	CA	0.27	102	14.0
19	19	Los Angeles (2)	Hollywood Fwy/US-101 NB	SPRING ST	Los Angeles	CA	0.14	110	16.4
20	129	San Francisco (13)	CA-24 WB	GATEWAY BLVD/EXIT 7A	Contra Costa	CA	1.12	66	11.8
21	26	New York (1)	Harlem River Dr NB	LOWER LVL WASHINGTON BRG	New York	NY	0.11	108	14.1
22	115	New York (1)	I-95 NB	NJ-4	Bergen	NJ	0.81	81	12.1
23	75	New York (1)	Major Deegan Expy/I-87 NB	153RD ST/RIVER AVE/EXIT 6	Bronx	NY	0.29	79	11.6
24	22	Los Angeles (2)	Hollywood Fwy/US-101 SB	MELROSE AVE	Los Angeles	CA	0.35	97	17.3
25	62	New York (1)	Gowanus Expy/I-278 EB	NY-27/PROSPECT EXPY/EXIT 24	Kings	NY	1.32	107	16.5
26	38	Los Angeles (2)	Santa Ana Fwy/I-5 NB	E 7TH ST	Los Angeles	CA	0.26	83	13.6
27	27	Los Angeles (2)	Harbor Fwy/I-110 NB	ADAMS BLVD	Los Angeles	CA	0.13	96	17.6
28	34	New York (1)	Van Wyck Expy/I-678 NB	JAMAICA AVE/EXIT 6	Queens	NY	0.16	90	15.7
29	89	New York (1)	Gowanus Expy/I-278 EB	HAMILTON AVE/EXIT 26	Kings	NY	0.91	121	15.8
30	24	Los Angeles (2)	Hollywood Fwy/US-101 SB	CA-2/SANTA MONICA BLVD	Los Angeles	CA	0.40	87	17.0
31	544	Chicago (3)	Kennedy Expy/I-90/I-94 EB	MONROE ST/EXIT 51E	Cook	IL	0.18	106	18.3
32	30	New York (1)	Van Wyck Expy/I-678 NB	ATLANTIC AVE/EXIT 5	Queens	NY	0.48	87	15.3
33	29	Los Angeles (2)	Hollywood Fwy/US-101 SB	SILVER LAKE BLVD	Los Angeles	CA	0.42	110	21.1
34	31	Los Angeles (2)	Hollywood Fwy/US-101 SB	NORMANDIE AVE	Los Angeles	CA	0.40	93	18.7
35	28	New York (1)	Van Wyck Expy/I-678 NB	LINDEN BLVD/EXIT 3	Queens	NY	0.70	71	13.5
36	162	Los Angeles (2)	San Diego Fwy/I-405 NB	OLYMPIC BLVD/PICO BLVD	Los Angeles	CA	0.38	85	17.1
37	116	Los Angeles (2)	San Diego Fwy/I-405 NB	NATIONAL BLVD	Los Angeles	CA	0.89	83	17.5
38	25	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	TAYLOR ST/EXIT 52A	Cook	IL	0.17	90	17.8
39	575	New York (1)	Major Deegan Expy/I-87 SB	179TH ST/EXIT 8	Bronx	NY	0.44	85	15.7
40	49	Los Angeles (2)	Santa Ana Fwy/I-5 NB	IMPERIAL HWY	Los Angeles	CA	0.40	103	21.3
41	141	New York (1)	Gowanus Expy/I-278 EB	NY-27/PROSPECT EXPY	Kings	NY	2.07	98	18.1
42	33	Los Angeles (2)	Hollywood Fwy/US-101 SB	SUNSET BLVD	Los Angeles	CA	0.24	71	16.6
43	103	Chicago (3)	Kennedy Expy/I-90 WB	FOSTER AVE/EXIT 83A	Cook	IL	0.41	80	17.9
44	59	New York (1)	Belt Pkwy/Southern Pkwy WB	I-678/VAN WYCK EXPY/EXIT 20	Queens	NY	1.02	84	19.2
45	54	New York (1)	Staten Island Expy/I-278 EB	VICTORY BLVD/EXIT 10	Richmond	NY	0.28	86	18.5
46	23	New York (1)	Cross Bronx Expy EB/I-95 NB	JEROME AVE/EXIT 2A	Bronx	NY	0.54	84	16.7
47	102	New York (1)	Brooklyn Queens Expy/I-278 EB	ATLANTIC AVE/EXIT 27	Kings	NY	0.86	95	16.5
48	52	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	US-19/BANKSVILLE RD/EXIT 5	Allegheny	PA	0.72	69	13.5
49	118	Los Angeles (2)	Santa Ana Fwy/US-101 NB	GRAND AVE/TEMPLE ST	Los Angeles	CA	0.29	91	18.5
50	50	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	PARKWAY CENTER DR/EXIT 4B	Allegheny	PA	0.51	57	11.8
51	73	New York (1)	Brooklyn Queens Expy/I-278 EB	APOLLO ST/MEEKER AVE/EXIT 34	Kings	NY	0.66	88	17.9
52	134	New York (1)	Bruckner Expy/I-95 NB	PELHAM PKWY/EXIT 8	Bronx	NY	0.80	79	18.0
53	72	Los Angeles (2)	Santa Monica Fwy/I-110 EB	HOOVER ST	Los Angeles	CA	0.28	83	20.7
54	77	New York (1)	Brooklyn Queens Expy/I-278 EB	HUMBOLDT ST/MEEKER AVE/EXIT 33	Kings	NY	0.43	76	16.3
55	167	New York (1)	Major Deegan Expy/I-87 NB	155TH ST/MACOMBS DAM BRG/EXIT 5	Bronx	NY	0.90	68	13.8
56	64	Los Angeles (2)	San Diego Fwy/I-405 NB	VENICE BLVD	Los Angeles	CA	0.42	68	18.1
57	68	New York (1)	Long Island Expy/I-495 EB	WOODHAVEN BLVD	Queens	NY	0.61	72	17.4
58	91	New York (1)	Lincoln Tunl/NJ-495 EB	PARK AVE	Hudson	NJ	0.65	58	11.3
59	79	New York (1)	Staten Island Expy/I-278 EB	NY-440/EXIT 9	Richmond	NY	0.65	77	18.4
60	83	Chicago (3)	Kennedy Expy/I-90 EB	IL-171/CUMBERLAND AVE/EXIT 79	Cook	IL	0.75	74	18.3
61	114	New York (1)	Cross Bronx Expy WB/I-95 SB	WEBSTER AVE/EXIT 2B	Bronx	NY	0.41	80	18.1
62	143	Los Angeles (2)	Santa Ana Fwy/I-5 NB	NORWALK BLVD/SAN ANTONIO DR	Los Angeles	CA	1.16	87	22.0
63	35	Los Angeles (2)	Harbor Fwy/CA-110 NB	5TH ST/6TH ST	Los Angeles	CA	0.44	73	18.3
64	189	Chicago (3)	Kennedy Expy/I-90 WB	CENTRAL AVE/EXIT 83B	Cook	IL	0.58	75	19.1
65	40	Los Angeles (2)	Harbor Fwy/CA-110 SB	US-101/HOLLYWOOD FWY	Los Angeles	CA	0.60	69	18.2
66	32	Los Angeles (2)	Harbor Fwy/CA-110 NB	8TH ST/EXIT 22	Los Angeles	CA	0.35	61	16.0
67	4045	Houston (6)	East Fwy/I-10 WB	WACO ST/EXIT 771A	Harris	TX	0.53	62	16.3
68	51	Los Angeles (2)	Santa Monica Fwy/I-110 EB	I-110/CA-110/HARBOR FWY	Los Angeles	CA	0.59	83	21.6
69	112	San Francisco (13)	CA-4 WB	G ST	Contra Costa	CA	0.49	58	16.3
70	86	Los Angeles (2)	Hollywood Fwy/US-101 SB	WESTERN AVE	Los Angeles	CA	0.25	70	18.9

Table 13: *Nation's 100 Worst Bottlenecks, 2010 (continued on next table)*

Congested Corridors and Bottlenecks

2010 Rank	2009 Rank	CBSA (Pop Rank)	Road/Direction	Segment/Interchange	County	ST	Length (Miles)	Hours of Congestion	Average Speed when Congested (MPH)
71	44	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	I-55/ADLAI E STEVENSON EXPY/EXIT 53B	Cook	IL	0.68	61	14.0
72	157	Chicago (3)	Kennedy Expy/I-90 WB	BRYN MAWR AVE/NAGLE AVE/EXIT 82C	Cook	IL	0.55	82	21.7
73	47	Chicago (3)	Dan Ryan Expy/I-90/I-94 WB	I-290/EISENHOWER EXPY/EXIT 51H-I	Cook	IL	0.32	78	19.3
74	43	Los Angeles (2)	Harbor Fwy/CA-110 NB	OLYMPIC BLVD/9TH ST	Los Angeles	CA	0.51	74	19.3
75	58	Los Angeles (2)	Harbor Fwy/I-110 NB	28TH ST	Los Angeles	CA	0.56	74	19.1
76	169	Los Angeles (2)	Santa Ana Fwy/I-5 NB	ROSECRANS AVE	Los Angeles	CA	1.16	77	20.7
77	110	Austin (35)	I-35 SB	12TH ST/15TH ST/EXIT 234-235	Travis	TX	0.41	48	13.0
78	36	New York (1)	Harlem River Dr SB	PARK AVE	New York	NY	0.44	64	15.0
79	176	New York (1)	Staten Island Expy/I-278 EB	SOUTH AVE	Richmond	NY	0.71	63	16.5
80	257	New York (1)	Bruckner Expy/I-95 NB	BRUCKNER BLVD	Bronx	NY	0.81	61	15.5
81	249	Chicago (3)	Kennedy Expy/I-90/I-94 EB	OGDEN AVE/EXIT 50A	Cook	IL	0.27	76	19.5
82	42	Chicago (3)	Kennedy Expy/I-90/I-94 EB	MONTROSE AVE/EXIT 43C	Cook	IL	0.28	65	16.9
83	100	Chicago (3)	Edens Expy/I-94 EB	ELSTON AVE	Cook	IL	0.32	59	16.0
84	120	New York (1)	Brooklyn Queens Expy/I-278 WB	TILLARY ST/EXIT 29	Kings	NY	0.90	54	12.5
85	93	Los Angeles (2)	Santa Ana Fwy/US-101 NB	VIGNES ST/EXIT 2B	Los Angeles	CA	0.25	78	18.7
86	94	New York (1)	Brooklyn Queens Expy/I-278 EB	UNION AVE/EXIT 32B	Kings	NY	0.19	65	15.4
87	117	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	PA-121/EXIT 4	Allegheny	PA	0.34	49	12.0
88	18	Chicago (3)	Eisenhower Expy/I-290 EB	US-20/US-45/US-12/EXIT 17	Cook	IL	0.99	56	15.5
89	122	Chicago (3)	Kennedy Expy/I-90 EB	CENTRAL AVE/EXIT 83B	Cook	IL	0.13	59	15.9
90	236	Los Angeles (2)	San Bernadino Fwy/I-10 EB	DURFEE AVE/GARVEY AVE	Los Angeles	CA	0.62	53	14.3
91	145	Los Angeles (2)	Santa Ana Fwy/I-5 NB	CA-60	Los Angeles	CA	0.73	62	15.4
92	133	Chicago (3)	Kennedy Expy/I-90/I-94 EB	MILWAUKEE AVE/EXIT 49B	Cook	IL	0.22	79	21.0
93	136	New York (1)	Van Wyck Expy/I-678 SB	JAMAICA AVE/EXIT 6	Queens	NY	0.24	53	14.6
94	81	Chicago (3)	Edens Expy/I-94 EB	W FOSTER AVE/EXIT 42	Cook	IL	0.46	56	15.5
95	39	Los Angeles (2)	Harbor Fwy/CA-110 NB	3RD ST/4TH ST	Los Angeles	CA	0.21	74	20.5
96	90	Chicago (3)	Northwest Tollway/I-90 SB	I-190/EXIT 78	Cook	IL	0.75	59	14.2
97	128	Chicago (3)	Kennedy Expy/I-90 EB	FOSTER AVE/EXIT 83A	Cook	IL	0.79	60	16.7
98	126	Los Angeles (2)	Riverside Fwy/CA-91 EB	GYPSUM CANYON RD	Orange	CA	1.40	44	12.6
99	226	Chicago (3)	Kennedy Expy/I-90 WB	AUSTIN AVE/EXIT 82C	Cook	IL	0.48	79	22.0
100	131	New York (1)	Long Island Expy/I-495 EB	I-295/CLEARVIEW EXPY/EXIT 27	Queens	NY	0.63	74	19.5
Top 100 in 2009, not in Top 100 in 2010									
462	6	New Haven (60)	I-91 SB	HAMILTON ST/EXIT 2	New Haven	CT	0.22	37	21.0
*	7	Los Angeles (2)	Hollywood Fwy/US-101 NB	LOS ANGELES ST	Los Angeles	CA	*	*	*
171	16	Los Angeles (2)	Pasadena Fwy/CA-110 NB	SUNSET BLVD/EXIT 24A	Los Angeles	CA	0.19	43	15.9
121	21	Chicago (3)	Eisenhower Expy/I-290 EB	25TH AVE/S 18TH AVE/EXIT 18	Cook	IL	0.66	58	16.2
154	37	Chicago (3)	Eisenhower Expy/I-290 WB	CENTRAL AVE/EXIT 23B	Cook	IL	0.55	58	18.3
125	41	Chicago (3)	Eisenhower Expy/I-290 EB	17TH AVE/EXIT 19A	Cook	IL	0.53	60	17.0
217	45	Los Angeles (2)	Harbor Fwy/CA-110 NB	US-101/HOLLYWOOD FWY	Los Angeles	CA	0.67	45	18.0
114	46	Chicago (3)	Kennedy Expy/I-90/I-94 EB	KEELER AVE/EXIT 44A	Cook	IL	0.57	63	18.1
200	48	New York (1)	Alexander Hamilton Brg EB/I-95 NB	I-87/EXIT 1	Bronx	NY	0.31	53	15.1
181	53	Chicago (3)	Eisenhower Expy/I-290 EB	9TH AVE/EXIT 19B	Cook	IL	0.50	52	17.4
*	55	Los Angeles (2)	Harbor Fwy/I-110 NB	EXPOSITION BLVD	Los Angeles	CA	*	*	*
119	56	Chicago (3)	Kennedy Expy/I-90/I-94 EB	KOSTNER AVE/EXIT 43D	Cook	IL	0.12	61	17.4
3198	57	San Francisco (13)	I-238 NB	CA-185/14TH ST/MISSION BLVD	Alameda	CA	0.35	7	27.0
101	60	San Francisco (13)	James Lick Fwy/I-80 EB	7TH ST/BRYANT ST	San Francisco	CA	0.38	47	11.6
678	61	Los Angeles (2)	San Diego Fwy/I-405 NB	CA-90	Los Angeles	CA	0.95	26	20.7
113	63	New York (1)	Cross Bronx Expy WB/I-95 SB	3RD AVE/EXIT 3	Bronx	NY	0.93	77	18.9
1232	65	Los Angeles (2)	San Diego Fwy/I-405 SB	CA-2/SANTA MONICA BLVD	Los Angeles	CA	0.76	16	20.5
250	66	Los Angeles (2)	Pasadena Fwy/CA-110 SB	SUNSET BLVD/EXIT 24A	Los Angeles	CA	0.18	49	21.1
NR	69	Poughkeepsie (77)	NY-17 EB	NY-211/EXIT 120	Orange	NY	2.76	70	25.6
321	70	Seattle (15)	WA-520 WB	BELLEVUE WAY/LAKE WASHINGTON BLVD	King	WA	0.31	28	13.8
104	71	New York (1)	Long Island Expy/I-495 EB	I-678/EXIT 22	Queens	NY	0.66	64	17.2
644	74	Los Angeles (2)	Pasadena Fwy/CA-110 NB	HILL ST/EXIT 24B	Los Angeles	CA	0.47	35	26.6
109	76	Austin (35)	I-35 NB	RIVERSIDE DR/EXIT 233	Travis	TX	0.99	61	17.4
130	78	New York (1)	George Washington Brg EB/I-95 NB	US-9/178TH ST/HENRY HUDSON PKWY	New York	NY	0.40	70	18.4
173	80	Los Angeles (2)	Santa Ana Fwy/I-5 SB	CA-60	Los Angeles	CA	0.39	41	12.5
225	82	Chicago (3)	Eisenhower Expy/I-290 EB	1ST AVE/EXIT 20	Cook	IL	0.47	53	19.3
*	84	Los Angeles (2)	Hollywood Fwy/US-101 NB	CA-110/PASADENA FWY	Los Angeles	CA	*	*	*
132	87	Los Angeles (2)	Hollywood Fwy/CA-170 NB	SHELDON ST	Los Angeles	CA	0.25	37	11.9
146	88	Los Angeles (2)	Pasadena Fwy/CA-110 SB	HILL ST/EXIT 24B	Los Angeles	CA	0.46	59	19.9
275	92	Seattle (15)	WA-16 EB	UNION AVE	Pierce	WA	0.76	50	21.1
281	95	Chicago (3)	Eisenhower Expy/I-290 WB	LARAMIE AVE/EXIT 24A	Cook	IL	0.39	47	19.9
120	96	San Francisco (13)	CA-4 EB	LOVERIDGE RD	Contra Costa	CA	1.08	51	15.8
205	97	Los Angeles (2)	Hollywood Fwy/US-101 SB	GLENDALE BLVD/UNION AVE	Los Angeles	CA	0.21	69	25.8
218	98	San Francisco (13)	J Arthur Younger Fwy/CA-92 EB	HESPERIAN BLVD	Alameda	CA	0.71	35	13.4
107	99	Pittsburgh (22)	Penn Lincoln Pkwy/I-376 EB	US-19 TK RT/PA-51/EXIT 5	Allegheny	PA	0.22	67	16.7

*** These segments have been subsumed by otherlisted bottlenecks in updated map data**

Table 14: *Nation's 100 Worst Bottlenecks, 2010 (continued)*

Congested Corridors and Bottlenecks

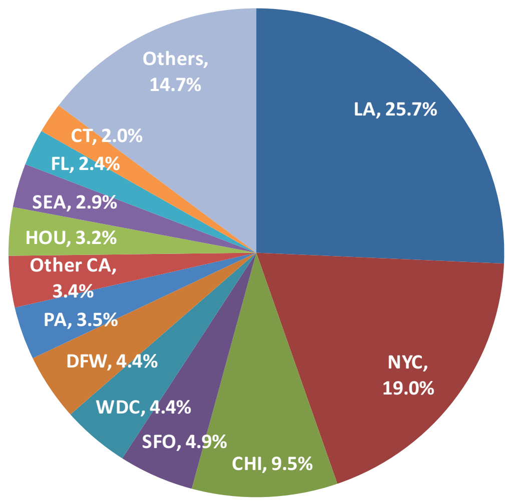


Figure 12: *Percentage of the Worst 1000 National Bottlenecks by Metropolitan Area, 2010*

Nation's Worst 1000 Bottlenecks

As in 2009, more than half of the nation's top 1000 bottleneck segments (54%) continue to be in the New York, Los Angeles and Chicago areas (see Figure 12). 165 of the nation's top 1000 bottlenecks in 2009 fell from the top 1000 in 2010. Just like the Top 100 bottlenecks, the length weighted average hours of congestion was up significantly from 2009: 37 hours in 2010 vs. 27 hours in 2009, a 40% increase.

Bottlenecks Beyond Top 100 Metropolitan Areas

Congestion is not restricted only to the largest metropolitan areas, as Table 15 shows. Fourteen segments in regions outside the Top 100 large areas had significant congestion. All but one segment is in California, and many are well known recurring congestion locations. The one segment outside of California is associated with a construction project in Pennsylvania.[13]

Rank	CBSA (Pop Rank)	Road/Direction	Segment/Interchange	County	ST	Length (Miles)	Hours of Congestion	Average Speed when Congested
1	Santa Barbara-Santa Maria CA (124)	El Camino Real/US-101 SB	GARDEN ST/LAGUNA ST	Santa Barbara	CA	0.67	34	17.32
2	Santa Cruz-Watsonville CA (176)	CA-1 SB	COMMERCIAL WAY/SOQUEL DR	Santa Cruz	CA	0.94	28	16.50
3	Santa Barbara-Santa Maria CA (124)	El Camino Real/US-101 SB	BATH ST/CASTILLO ST	Santa Barbara	CA	0.65	28	17.54
4	Santa Rosa-Petaluma CA (105)	Redwood Hwy/US-101 SB	SANTA ROSA AVE	Sonoma	CA	1.25	36	22.55
5	Santa Cruz-Watsonville CA (176)	CA-1 SB	MORRISSEY BLVD	Santa Cruz	CA	0.80	23	15.92
6	Santa Barbara-Santa Maria CA (124)	El Camino Real/US-101 SB	CA-144/MILPAS ST	Santa Barbara	CA	0.90	30	19.68
7	Santa Cruz-Watsonville CA (176)	CA-1 SB	BAY AVE/PORTER ST	Santa Cruz	CA	0.37	27	21.30
8	Santa Rosa-Petaluma CA (105)	Redwood Hwy/US-101 NB	COMMERCE BLVD/WILFRED AVE	Sonoma	CA	0.60	30	24.35
9	Santa Cruz-Watsonville CA (176)	CA-1 SB	41ST AVE	Santa Cruz	CA	1.33	19	16.55
10	Santa Rosa-Petaluma CA (105)	Redwood Hwy/US-101 NB	ROHNERT PARK EXPY	Sonoma	CA	1.44	26	22.38
11	Vallejo-Fairfield CA (122)	I-80 EB	SOLANO/YOLO COUNTY LINE	Solano	CA	1.27	12	15.47
12	East Stroudsburg PA (241)	US-209/PA-33 SB	MANOR DR	Monroe	PA	0.81	18	25.31
13	Salinas CA (120)	Monterey Salinas Hwy/CA-68 WB	TORERO DR	Monterey	CA	0.58	12	17.03
14	Santa Rosa-Petaluma CA (105)	Redwood Hwy/US-101 NB	CA-116/GRAVENSTEIN HWY	Sonoma	CA	0.87	16	23.44

Table 15: *Bottlenecks Outside of Top 100 CBSAs*

[13] http://www.marshallscreektrafficrelief.com/

Congested Corridors and Bottlenecks

Persistent Bottlenecks

Figure 13 illustrates that amount of miles congested at least five hours or more was up significantly in 2010 as compared to 2009. Interestingly, while miles of roads congested under 20 hours a week are still below the peak levels of 2007, more miles of road are congested 20 hours a week or more than any previous year. Over 500 miles of roads were congested 25 hours a week in 2010 and nearly 200 of those miles were congested 40 hours a week. Congestion has snapped back quicker to bottlenecks that were already congested.

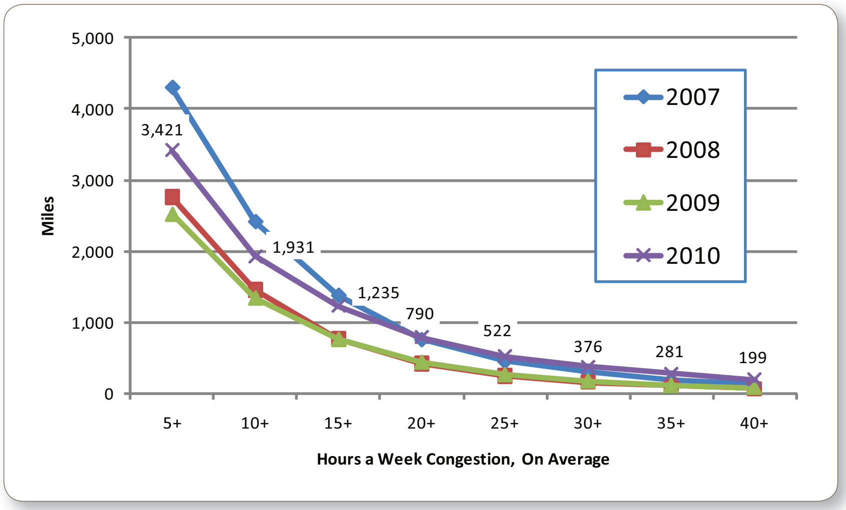


Figure 13: *Miles of Persistent Bottlenecks, Nationwide, by Year*

SCG Doc#260049 EF-A46

Long Haul Freight Movement

INRIX has the nation's largest data warehouse of sampled vehicle speeds, including the most extensive data related specifically to freight activity. In this Annual Scorecard, the subset of GPS vehicle probe data from 2010 attributed to vehicles focused on long haul freight movement has been separated from the full archive to present a timely picture on national freight movement via highways. While the distribution of samples may not precisely match the movement of all long haul vehicles nationwide, with INRIX's billions of data points and sources nationwide, this is the most extensive, consistent, and current analysis available on national freight activity.

The relative density of measured freight activity on the nation's major roads is shown in Figure 14.[14] The figure illustrates that the nation's truck freight network is highly interconnected, with some of its most important links – I-44 through Missouri, I-40 through Arkansas and I-70 through Indiana for example – located in places that aren't immediately obvious (except to fleets and people traveling those roads). Several organizations, including AASHTO[15] and two important national policy panels[16], have recently called for policies and programs elevating freight transportation as a strategic national transportation issue. In July 2010, Senator's Lautenberg, Murray, and Cantwell introduced the FREIGHT Act of 2010 specifically to establish and better coordinate national freight transportation policy.[17]

Figure 14: Nationwide Freight Density Map, Full Year 2010 Activity

[14] Relative freight activity is determined for each segment by adjusting the number of data points received by long haul vehicles based on the segment's length and average speed of the vehicles, allowing apples-to-apples comparisons of segments nationwide. The average of the nearly 49,000 segments analyzed is determined and the relative amount of activity on each segment compared to the average is calculated.

[15] http://www.transportation1.org/policy_freight/Freight%20Delivery.pdf

[16] http://transportationfortomorrow.org/ and http://www.bpcntpp.org/

[17] http://lautenberg.senate.gov/newsroom/record.cfm?id=326598

Long Haul Freight Movement

Zoom levels of some interesting regions of the country are included as Figures 15 through 19.

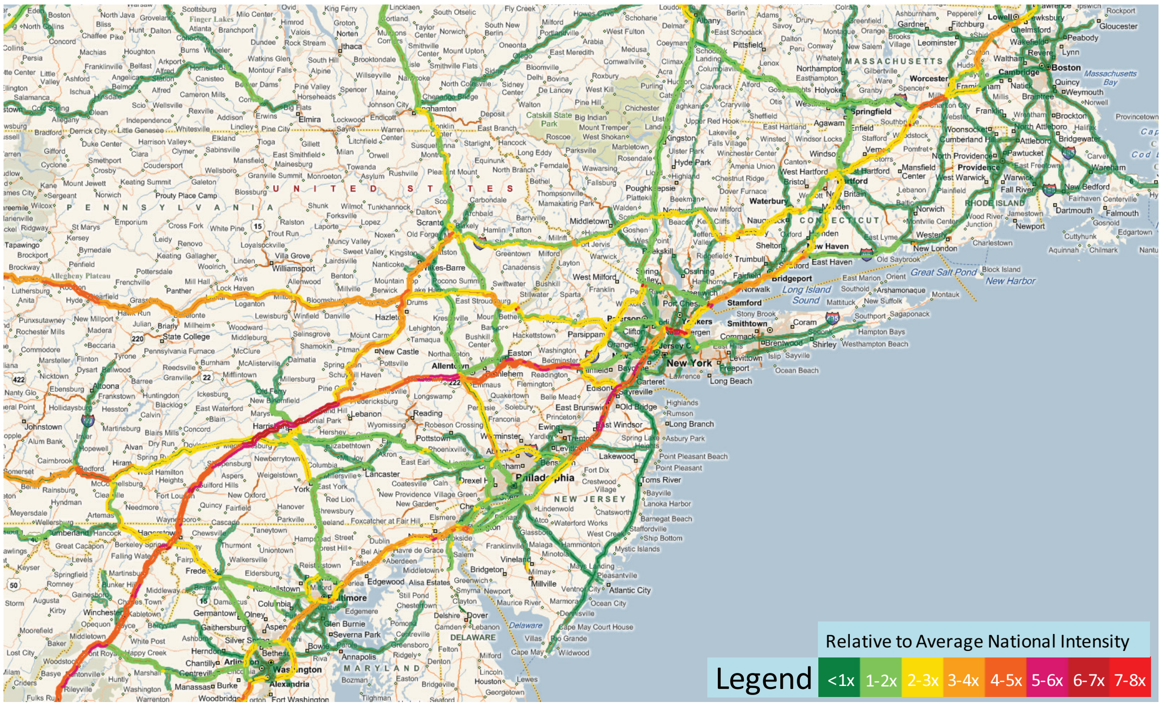


Figure 15: *Relative Freight Density, Northeast*

Figure 16: *Relative Freight Density, Great Lakes*

Long Haul Freight Movement

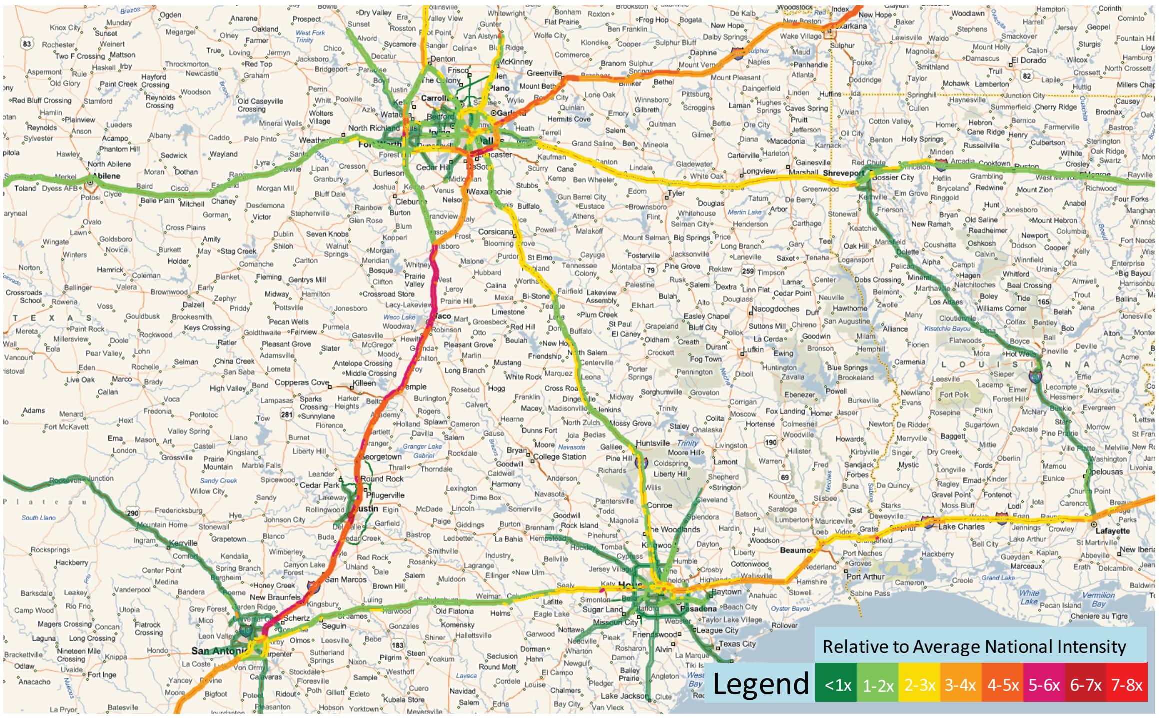


Figure 17: *Relative Freight Density, East Texas*

Figure 18: *Relative Freight Density, Southern California*

Long Haul Freight Movement

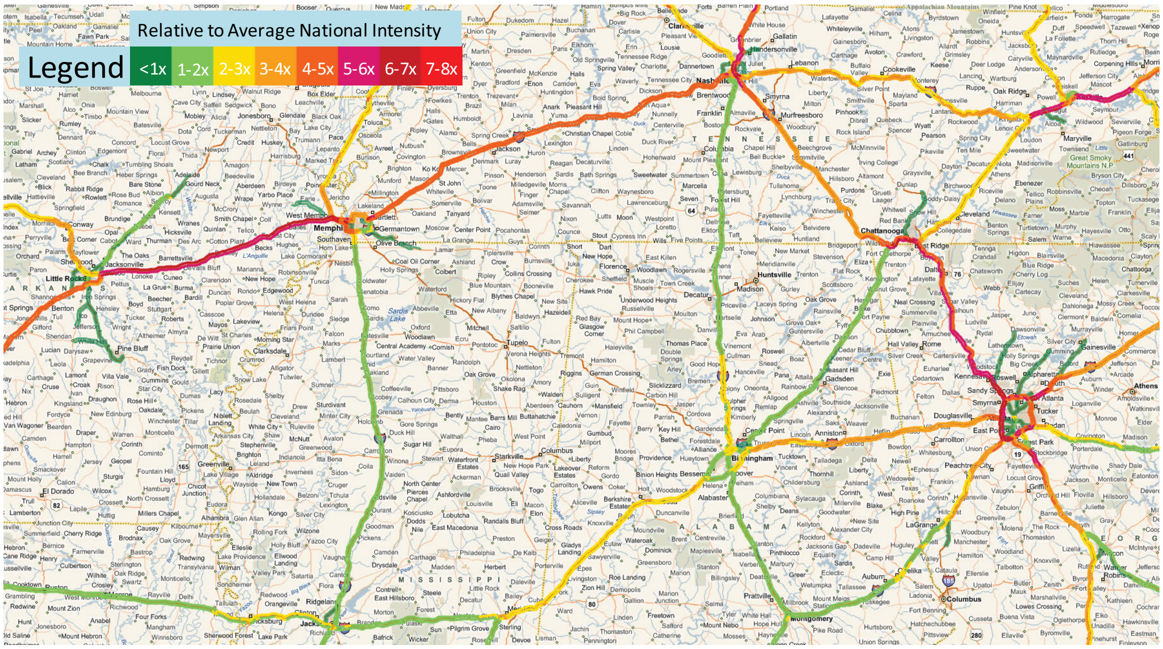


Figure 19: Relative Freight Density, Southeast

Figure 20 shows the relative freight activity of all miles analyzed nationwide and shows that just 5% of road miles have four times or more the average density of freight data, and less than 1% of road miles have five times or more.

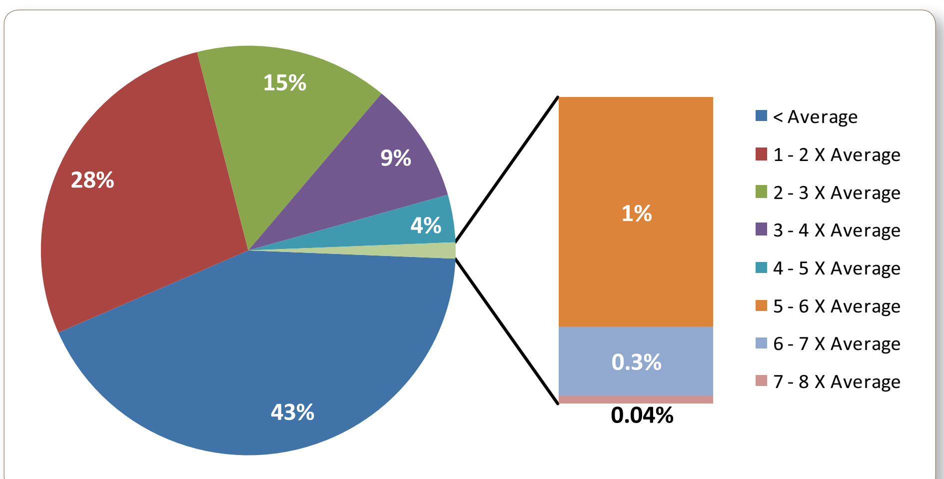


Figure 20: Relative Density of Freight Activity by Miles, Nationwide

Long Haul Freight Movement

Which Cities Have the Most Long Haul Freight?

By focusing on road segments in the nation's largest 100 markets, the amount of freight moving through each region can be assessed and compared. In 2010, 45% of the freight vehicle data volume analyzed was located in these top 100 markets—roughly in proportion to the total road miles analyzed located in these regions (43%). Thus, an important conclusion from the data is that long haul freight activity is proportional in urban and inter-urban areas; it is not a rural or urban issue—it affects both roughly the same. Long-haul freight is an Urban AND Rural issue— in addition to a national economic competitiveness issue.

Of course, not all regions have the same level of freight activity. Table 16 ranks the 100 largest CBSAs based on "activity/mile" which adjusts the total amount of freight activity measured in a region by the total road mileage analyzed in the region. The Table shows the relative level of activity by comparing each region to the average activity per mile (2.00 means the region had twice the per mile long haul freight activity measured than average). The Table also includes the ranking of each region in terms of the overall activity measured, irrespective of the number of miles.

In absolute terms, larger cities like Chicago and Dallas/Ft. Worth rank high. In terms of relative activity, the top rankings are dominated by areas where multiple heavily used interstates intersect—"crossroads cities." Topping the list are Chattanooga, where I-75 and I-24 meet, and Indianapolis, where four different interstate highways meet, including I-70 and I-65. How freight moves through these crossroads cities is critically important to the performance freight movement overall.

What States have the Most Long Haul Freight?

New to this year's report is an analysis of freight activity by state. Table 17 lists each state in order of freight activity per mile. Unsurprisingly, states with key corridors and one or more crossroads cities, such as Tennessee, Indiana and Georgia, are at the top of the list. Additionally, states with important corridors such as Nebraska (I-80) and Arkansas (I-40) rank in the top five as well. These top five have on average twice the relative long haul freight activity as compared to the average state.

Texas ranks first with the most overall long haul freight activity, with over 8% of the nationwide total. California is second (6%), and Illinois is third (just under 6%). Perhaps the most surprising rank is Arizona up at 11th—demonstrating the importance of the I-10 and I-40 corridors in the west.

Long Haul Freight Movement

Population Rank	CBSA	Rank of Overall Activity	Rank (Activity/Mile)	Activity/Mile Compared to Average
98	Chattanooga TN-GA	28	**1**	282%
34	Indianapolis-Carmel IN	7	**2**	258%
73	Knoxville TN	30	**3**	257%
35	Austin-Round Rock TX	33	**4**	240%
38	Nashville-Davidson--Murfreesboro--Franklin TN	8	**5**	222%
9	Atlanta-Sandy Springs-Marietta GA	4	**6**	195%
3	Chicago-Naperville-Joliet IL-IN-WI	1	**7**	194%
32	Columbus OH	11	**8**	190%
96	Harrisburg-Carlisle PA	23	**9**	189%
61	Dayton OH	26	**10**	184%
79	Toledo OH	39	**11**	179%
76	Little Rock-North Little Rock-Conway AR	18	**12**	168%
41	Memphis TN-MS-AR	20	**13**	165%
18	St. Louis MO-IL	5	**14**	160%
62	Allentown-Bethlehem-Easton PA-NJ	25	**15**	160%
66	Baton Rouge LA	51	**16**	154%
14	Riverside-San Bernardino-Ontario CA	2	**17**	148%
92	Scranton--Wilkes-Barre PA	42	**18**	148%
24	Cincinnati-Middletown OH-KY-IN	14	**19**	140%
93	Ogden-Clearfield UT	71	**20**	139%
57	Albuquerque NM	29	**21**	138%
33	Charlotte-Gastonia-Concord NC-SC	41	**22**	134%
63	Bakersfield CA	36	**23**	133%
4	Dallas-Fort Worth-Arlington TX	3	**24**	125%
90	Des Moines-West Des Moines IA	52	**25**	124%
72	Akron OH	46	**26**	124%
89	Youngstown-Warren-Boardman OH-PA	53	**27**	123%
42	Louisville/Jefferson County KY-IN	19	**28**	122%
100	Modesto CA	87	**29**	118%
68	El Paso TX	82	**30**	115%
56	Bridgeport-Stamford-Norwalk CT	60	**31**	113%
95	Augusta-Richmond County GA-SC	75	**32**	113%
22	Pittsburgh PA	21	**33**	110%
54	Fresno CA	55	**34**	110%
85	Boise City-Nampa ID	84	**35**	109%
47	Birmingham-Hoover AL	27	**36**	108%
59	Omaha-Council Bluffs NE-IA	40	**37**	107%
69	Columbia SC	45	**38**	106%
28	San Antonio TX	17	**39**	106%
78	Stockton CA	59	**40**	105%
43	Richmond VA	22	**41**	102%
29	Kansas City MO-KS	10	**42**	101%
48	Salt Lake City UT	34	**43**	97%
52	Tucson AZ	76	**44**	95%
5	Philadelphia-Camden-Wilmington PA-NJ-DE-MD	12	**45**	94%
88	Madison WI	50	**46**	93%
94	Jackson MS	58	**47**	93%
40	Jacksonville FL	44	**48**	91%
8	Washington-Arlington-Alexandria DC-VA-MD-WV	15	**49**	90%
45	Hartford-West Hartford-East Hartford CT	54	**50**	89%

Population Rank	CBSA	Rank of Overall Activity	Rank (Activity/Mile)	Activity/Mile Compared to Average
39	Milwaukee-Waukesha-West Allis WI	56	**51**	88%
91	Provo-Orem UT	74	**52**	86%
99	Portland-South Portland-Biddeford ME	73	**53**	86%
26	Cleveland-Elyria-Mentor OH	32	**54**	86%
44	Oklahoma City OK	24	**55**	85%
60	New Haven-Milford CT	67	**56**	85%
71	Greensboro-High Point NC	63	**57**	83%
82	Greenville-Mauldin-Easley SC	83	**58**	82%
64	Worcester MA	66	**59**	81%
2	Los Angeles-Long Beach-Santa Ana CA	9	**60**	75%
30	Las Vegas-Paradise NV	49	**61**	75%
77	Poughkeepsie-Newburgh-Middletown NY	70	**62**	74%
46	New Orleans-Metairie-Kenner LA	62	**63**	74%
6	Houston-Sugar Land-Baytown TX	13	**64**	73%
25	Sacramento--Arden-Arcade--Roseville CA	35	**65**	72%
58	Albany-Schenectady-Troy NY	65	**66**	72%
20	Baltimore-Towson MD	37	**67**	71%
12	Phoenix-Mesa-Scottsdale AZ	16	**68**	69%
21	Denver-Aurora-Broomfield CO	31	**69**	68%
1	New York-Northern New Jersey-Long Island NY-NJ-PA	6	**70**	64%
83	Colorado Springs CO	95	**71**	64%
81	Syracuse NY	68	**72**	64%
23	Portland-Vancouver-Beaverton OR-WA	61	**73**	63%
53	Tulsa OK	48	**74**	61%
87	Lakeland-Winter Haven FL	94	**75**	61%
80	Charleston-North Charleston-Summerville SC	89	**76**	60%
49	Raleigh-Cary NC	81	**77**	59%
50	Buffalo-Niagara Falls NY	80	**78**	55%
67	Grand Rapids-Wyoming MI	85	**79**	55%
74	Springfield MA	92	**80**	54%
16	Minneapolis-St. Paul-Bloomington MN-WI	43	**81**	53%
51	Rochester NY	72	**82**	50%
97	Palm Bay-Melbourne-Titusville FL	91	**83**	50%
11	Detroit-Warren-Livonia MI	47	**84**	47%
10	Boston-Cambridge-Quincy MA-NH	38	**85**	47%
15	Seattle-Tacoma-Bellevue WA	57	**86**	46%
19	Tampa-St. Petersburg-Clearwater FL	78	**87**	44%
84	Wichita KS	77	**88**	42%
36	Virginia Beach-Norfolk-Newport News VA-NC	88	**89**	37%
75	Bradenton-Sarasota-Venice FL	96	**90**	36%
27	Orlando-Kissimmee FL	69	**91**	36%
7	Miami-Fort Lauderdale-Pompano Beach FL	64	**92**	32%
65	Oxnard-Thousand Oaks-Ventura CA	97	**93**	30%
70	McAllen-Edinburg-Mission TX	98	**94**	28%
37	Providence-New Bedford-Fall River RI-MA	90	**95**	28%
13	San Francisco-Oakland-Fremont CA	79	**96**	24%
17	San Diego-Carlsbad-San Marcos CA	86	**97**	22%
31	San Jose-Sunnyvale-Santa Clara CA	93	**98**	22%
86	Cape Coral-Fort Myers FL	99	**99**	20%
55	Honolulu HI (No Long Haul freight)	NA	**NA**	NA

Table 16: *Freight Activity by CBSA, full year 2010*

Long Haul Freight Movement

Population Rank	State	Rank of Overall Activity	Rank (Activity/Mile)	Activity/Mile Compared to Average
17	Tennessee	7	**1**	222%
38	Nebraska	22	**2**	218%
16	Indiana	6	**3**	208%
32	Arkansas	12	**4**	203%
9	Georgia	9	**5**	174%
18	Missouri	8	**6**	159%
26	Kentucky	15	**7**	156%
6	Pennsylvania	4	**8**	155%
5	Illinois	3	**9**	152%
12	Virginia	10	**10**	149%
7	Ohio	5	**11**	144%
45	Delaware	46	**12**	140%
30	Iowa	24	**13**	131%
24	South Carolina	21	**14**	122%
2	Texas	1	**15**	120%
23	Alabama	20	**16**	120%
36	New Mexico	18	**17**	115%
51	Wyoming	23	**18**	114%
14	Arizona	11	**19**	109%
25	Louisiana	25	**20**	108%
37	West Virginia	34	**21**	107%
10	North Carolina	14	**22**	107%
20	Wisconsin	19	**23**	102%
27	Oregon	29	**24**	102%
28	Oklahoma	17	**25**	99%
31	Mississippi	32	**26**	96%
11	New Jersey	30	**27**	96%
34	Utah	27	**28**	93%
29	Connecticut	37	**29**	89%
19	Maryland	33	**30**	89%
1	California	2	**31**	85%
39	Idaho	38	**32**	74%
35	Nevada	36	**33**	73%
22	Colorado	28	**34**	71%
4	Florida	13	**35**	69%
33	Kansas	31	**36**	68%
3	New York	16	**37**	65%
8	Michigan	26	**38**	59%
15	Massachusetts	40	**39**	53%
40	Maine	42	**40**	53%
13	Washington	35	**41**	51%
21	Minnesota	39	**42**	41%
43	Rhode Island	47	**43**	33%
41	New Hampshire	45	**44**	26%
44	Montana	41	**45**	25%
46	South Dakota	43	**46**	22%
48	North Dakota	44	**47**	20%
50	District of Columbia	49	**48**	9%
49	Vermont	48	**49**	6%
42	Hawaii (No Long Haul Freight)	NA	**NA**	NA
47	Alaska (No Long Haul Freight)	NA	**NA**	NA

***Table 17:** Freight Activity by State, full year 2010*

International Comparisons

INRIX presently provides traffic flow data for eighteen countries in North America and Europe. In November 2010, INRIX published Traffic Scorecards for six western European countries—Great Britain, France, Germany, Belgium, the Netherlands and Luxembourg—in four separate reports.[18] Since these reports used identical methodologies as used in the U.S., it is now possible to compare congestion levels between metropolitan areas in all seven countries.

The published European Scorecards use data from the year period between August 2009 and July 2010. Thus for this analysis, monthly data from the same time period has been used in the United States.

Table 18 provides country level comparisons. In total, the 100 U.S. areas analyzed have about 10% more overall peak hour congestion than the 109 areas analyzed in Europe. This is due primarily to a major highway network more than twice as large in U.S. cities, that serves over 80 million more people. But from a Travel Time Tax perspective, Europe has twice the delay intensity than the United States. So from a driver's perspective, the U.S. on average has half the congestion of these European countries.

Region	CBSAs/LUZs Analyzed	Pop (000)	Road Miles Analyzed	Travel Time Tax (%)	% of Total Peak Congestion vs. US
United States	**100**	**201,502**	**46,266**	**9.1%**	**NA**
6 EU Countries Total	**109**	**113,671**	**20,125**	**18.9%**	**90.3%**
Germany	*35*	*41,508*	*7,601*	*19.7%*	*35.6%*
Great Britain	*25*	*34,022*	*4,231*	*22.5%*	*22.7%*
France	*27*	*26,501*	*5,896*	*14.3%*	*20.0%*
Benelux (Belguim, The Netherlands, Luxembourg)	*22*	*11,640*	*2,397*	*21.1%*	*12.1%*

Table 18: *Country Level Congestion Comparisons, August 2009 to July 2010*

Comparing Metropolitan Areas

As the Scorecard clearly illustrates, while national congestion levels and trends are a relevant barometer of overall conditions, traffic and congestion is a local issue, with wide variances area to area. So in comparing countries, it is logical to ask: How does America's worst stack up with Europe's worst?

[18] http://euscorecard.inrix.com

International Comparisons

Table 19 ranks the Top 25 of the 209 areas analyzed by overall peak period congestion. Fifteen of the Top 25 are American areas, with Paris the only non-U.S. region in the Top 5. Again, the scale of freeway/tollway networks in each country's urban areas leads to more overall travel in U.S. cities occurring on freeways than their European counterparts. Larger networks translate into slightly more overall congestion.

Congestion Rank	Region	Country	Population Rank	Population (000)	Road Miles Analyzed	2010 % of Worst (LA)	Travel Time Tax Rank
1	Los Angeles	US	2	12875	1,448	100%	1
2	New York City	US	1	19070	2,186	92%	40
3	Paris	FR	4	11532	1,116	71%	4
4	Chicago	US	5	9581	1,298	43%	72
5	Washington, DC	US	10	5476	849	40%	29
6	London	EN	3	11917	784	39%	23
7	Ruhrgebiet	DE	12	5302	801	37%	30
8	Dallas-Ft. Worth	US	6	6448	1,530	37%	105
9	San Francisco	US	17	4318	701	33%	28
10	Houston	US	8	5867	1,169	32%	91
11	Hamburg	DE	21	3135	701	28%	50
12	Berlin	DE	13	4971	820	26%	79
13	Boston	US	14	4589	985	25%	99
14	Philadelphia	US	7	5968	985	22%	112
15	Seattle	US	19	3408	590	21%	64
16	Minneapolis/St. Paul	US	20	3270	805	21%	96
17	Atlanta	US	11	5475	910	21%	110
18	Frankfurt am Main	DE	30	2518	428	18%	36
19	Miami/Ft. Lauderdale	US	9	5547	694	16%	111
20	Köln	DE	42	1874	300	16%	18
21	Baltimore	US	25	2691	658	15%	107
22	München	DE	29	2532	458	15%	76
23	Manchester	EN	28	2539	224	15%	3
24	Denver	US	27	2552	740	14%	117
25	San Diego	US	22	3054	599	14%	109

Table 19: *Top 25 Most Congested Regions across the 7 Countries, August 2009 to July 2010*

International Comparisons

Table 20 provides the view for individual drivers. When ranked in terms of Travel Time Tax, only two U.S. areas—Los Angeles and Honolulu—crack the Top 25. The rankings are clear demonstration that Europeans have to fight harder to utilize the smaller highway network.

Travel Time Tax Rank	Region	Country	Population Rank	Population (000)	Road Miles Analyzed	Travel Time Tax (%)
1	Los Angeles	US	2	12875	1,448	34.7%
2	Utrecht	NL	200	240	88	34.2%
3	Manchester	EN	28	2539	224	32.8%
4	Paris	FR	4	11532	1,116	32.0%
5	Arnhem	NL	181	351	100	30.7%
6	Trier	DE	175	396	74	30.3%
7	Derry	NI	208	107	60	29.8%
8	Bruxelles / Brussel	BE	45	1801	230	29.8%
9	Amsterdam	NL	56	1443	228	29.7%
10	Antwerpen	BE	86	915	169	29.5%
11	Nottingham	EN	99	826	54	29.3%
12	Newcastle upon Tyne	EN	77	1056	220	28.2%
13	Belfast	NI	126	642	233	28.2%
14	s' Gravenhage	NL	83	978	137	28.1%
15	Honolulu HI	US	88	908	75	27.5%
16	Liverpool	EN	57	1366	145	26.5%
17	Wuppertal	DE	180	361	34	26.4%
18	Köln	DE	42	1874	300	26.1%
19	Stuttgart	DE	26	2664	198	25.8%
20	Rotterdam	NL	71	1187	145	25.7%
21	Aberdeen	SC	167	436	186	25.5%
22	Mainz	DE	176	386	87	25.3%
23	London	EN	3	11917	784	25.0%
24	Wiesbaden	DE	206	153	49	24.8%
25	Birmingham	EN	32	2357	219	24.3%

Table 20: *Top 25 Most Congested Regions across the 7 Countries by Travel Time Tax, August 2009 to July 2010*

But…all regions take a back seat to Los Angeles, by any measure. Even though congestion is over 20% lower than the peak year of 2007 in the LA area, it is still the worse than cities such as Paris, London and Brussels. Congratulations Los Angeles—even when adding most of Western Europe, those of you that use the freeways to get around town—you still take the cake!

Metropolitan Summaries

The 2010 Scorecard summary for each of the nation's largest 100 metropolitan areas, rank order by peak period congestion, is summarized in Appendix A.

Figure 21 illustrates the improvements to the summaries from last year to provide much more detailed information, still on a single page. The page on the right is the 2010 version of the report with several new features. The *Trends* section includes five years of national rankings and trend data, and a graph showing the monthly changes in Travel Time Tax for 2008, 2009 and 2010. The *Patterns* section includes a chart of the region's Travel Time Tax for each day of the week in 15 minute increments (vs. one hour averages of previous years), highlighting the most congested time each week. The *Impact* section highlights the region's employment changes since 2006 and the changes in congestion levels over the same period, also providing comparisons to national figures. The *Congested Corridors and Bottlenecks* section expands upon previous *Bottlenecks* sections and include the area's most congested corridors. The most congested corridors and bottlenecks are listed, up to ten in each metropolitan area.

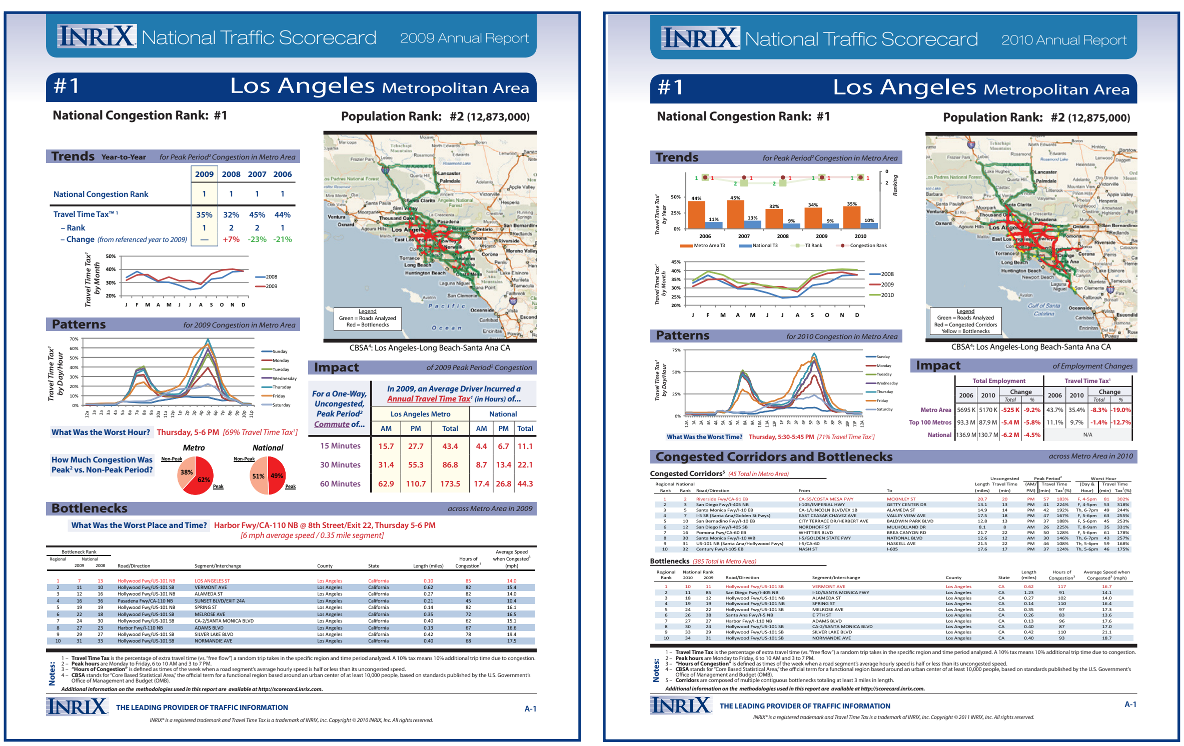


Figure 21: Comparison of 2009 and 2010 Scorecard Metropolitan Summary Page (2009 version on left)

Scorecard Relationship with Other Studies

Scorecard Relationship with Other Studies

As one would expect for an issue as relevant to our daily lives and economic system as traffic congestion, there are many recently published studies on the issue. This Scorecard expands upon and complements these reports. The following list is but a few of the notable recent reports:

- *2010 Annual Urban Mobility Report* (Texas Transportation Institute): http://mobility.tamu.edu/ums/
- *Bottleneck Performance in the I95 Corridor: Baseline Analysis Using Vehicle Probe Data* (I-95 Corridor Coalition): http://www.i95coalition.org/i95/Portals/0/Public_Files/pm/reports/Final%20Report_Bottleneck%20Performance%20I-95_Baseline%20Analysis(Final).pdf
- *Unclogging America's Arteries: Effective Relief for Highway Bottlenecks 1999-2004* (American Highway Users Alliance): http://www.highways.org/pdfs/bottleneck2004.pdf
- *Building Roads to Reduce Traffic Congestion in America's Cities: How Much and at What Cost?* (Reason Foundation): http://reason.org/files/ps346.pdf
- *America's Most Congested Cities* (Forbes Life Magazine): http://www.forbes.com/2008/04/10/congested-commute-cities-forbeslife-cx_mw_0410realestate.html
- *The Road…Less Traveled: An Analysis of Vehicle Miles Traveled Trends in the U.S* (The Brookings Institution): http://www.brookings.edu/reports/2008/~/media/Files/rc/reports/2008/1216_transportation_tomer_puentes/vehicle_miles_traveled_report.pdf
- *Freight Performance Measurement: Travel Time in Freight-Significant Corridors* (Federal Highway Administration): http://ops.fhwa.dot.gov/freight/freight_analysis/perform_meas/fpmtraveltime/index.htm
- *An Initial Assessment of Freight Bottlenecks on Highways* (Federal Highway Administration): http://www.fhwa.dot.gov/policy/otps/bottlenecks/index.htm
- *2009 Bottleneck Analysis of 100 Freight Significant Highway Locations* (American Transportation Research Institute): http://www.atri-online.org/index.php?option=com_content&view=article&id=248&Itemid=75

While the Scorecard shares some common elements with these reports, it also has several unique features.

- Common elements
  - The Scorecard adopts the common convention of peak period drive time hours of 6–10 AM and 3–7 PM, Monday through Friday.
  - The Travel Time Index concept is now a standard metric to measure conditions relative to uncongested, free flow situations. (As stated in the methodology section, new this year in the Scorecard is the Travel Time Tax, which is a derivative of the Travel Time Index).

Scorecard Relationship with Other Studies

- Unique features
  - — This report is based on data, technology and processes that have been designed to optimize very quick turnaround times between the end of the data collection period and the publishing of the Scorecard. Many of the reports utilize data that is many months or years old when published.
  - — The Scorecard is completely based upon real data—tens of billions of data points from real consumer and commercial vehicles traveling on real road segments. It is not limited by sensor coverage nor is it an interpolation of data.
  - — This is the first and still only analysis to go to the detailed road segment level nationwide; it is also the first to look in depth by hour and day nationwide. Further, this report offers a unique opportunity to see trending by time, region or specific road segment, now over five years in total.

Given the myriad of ways to calculate congestion and the wide range of raw data that is utilized, it is natural that different reports can have different results, rankings and indexes. When comparing differences between the Scorecard and other reports, it could be due to one or more of the following reasons:

- — Many of the reports weight results by traffic volume and/or factor in the number of lanes on roadways; the Scorecard does not.
- — Travel Time Tax calculations are from a road user perspective based on complete random trips, not weighted by volumes, lane miles, or origin/destination weighting.
- — Travel Time Tax values in the Scorecard seem lower than their corresponding Travel Time Indices in some other studies. This is likely for two reasons:
  - – Using a data driven reference speed instead of a flat speed for free flow, such as 60 mph, results in lower uncongested speeds in most cases, meaning less congestion is calculated for the same average speeds; and
  - – INRIX coverage extends throughout entire metropolitan areas including highways and commuting corridors far away from city centers that may contribute less to congestion than roads in the urban core, lowering the tax/index.
- — Studies may have different metropolitan areas, or aggregate some regions such as Washington, D.C. and Baltimore. The Scorecard approach could easily adjust market boundaries to aggregate results differently, but is presently based on the standardized, Census CBSA definition.
- — The Scorecard is focused on mainline lanes of limited access highways; other studies may include ramps, interchanges and arterials.

Scorecard Relationship with Other Studies

Why does the Travel Time Tax/Index from the INRIX Scorecard Differ from the Travel Time Index in TTI's Urban Mobility Report?

The recently published Urban Mobility Report (UMR) reported a national average Travel Time Index of 1.20 in 2009, whereas INRIX's national Travel Time Index for 2009 rounds to 1.09. Since both reports are based on the same underlying speed data from INRIX[19], what accounts for the large difference? There are two simple reasons:

— UMR includes arterials and the Scorecard focuses only on limited access roadways—freeways, tollways, etc. With traffic signals, arterials naturally have more delay than freeways, while freeways when functioning as intended have no delays.

— UMR integrates and weights analyses with measured and estimated traffic volumes and the Scorecard doesn't. Since recurring congestion and high traffic volume go hand-in-hand, the UMR gives increased weighting to congestion portions of the network and times of day, while the Scorecard weights all roads and times equally.

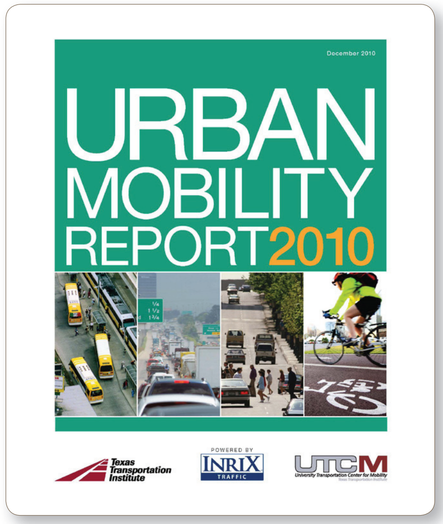


Figure 22: *TTI's Urban Mobility Report 2010*

An analogy can be made to the stock market. The Scorecard and UMR are like the Dow Jones Industrial Average and the S&P 500 Index. Both are widely followed and offer a view of market conditions, and usually track each other, but they are not identical. The Scorecard's Travel Time Tax is like the Dow Jones while the Urban Mobility Report's Travel Time Index is like the S&P 500.

[19] http://www.inrix.com/pressrelease.asp?ID=91

Acknowledgements and Future Updates

Acknowledgements

Rick Schuman, INRIX vice president of public sector, is the author of the INRIX National Traffic Scorecard and the driver behind the primary analysis of the data.

INRIX historically works with data providers, technology partners, experts and our customers to address traffic issues in North America and Europe. Collaborating to create unique and important products is key to INRIX's success. This Scorecard is no different. INRIX would like to thank several organizations and individuals who have assisted in one way or another in creating the approaches used in this and/or other Scorecards. Specifically, Tim Lomax and Shawn Turner of the Texas Transportation Institute, Rich Margiotta of Cambridge Systematics and Mark Hallenbeck of the University of Washington aided in development of the original Scorecard methodology, and Kevin Loftus of INRIX's partner Clear Channel Total Traffic Network provided local market knowledge and assistance in the initial version.

Future Updates

Leveraging the nation's most robust historical traffic data warehouse, INRIX is committed to publishing a report at minimum on an annual basis that continues to analyze the state of traffic congestion on our nation's roads. Based on input, feedback and the organic growth and expansion of our data sources, INRIX will continue to improve and expand the report in different ways each year. All ideas are welcomed.

There are many possible extensions and expansions to the information provided in this report. We welcome inquiries from public agencies and transportation data analysts to conduct more in-depth regional or national analyses based upon our traffic data archive and look forward to partnering to tap local knowledge and domain expertise to take full advantage of our data, and to incorporate and correlate with additional datasets (i.e., construction, incidents, weather, etc.). The same datasets used to create this Scorecard are available for licensing

INRIX also will continue to publish Scorecard Special Reports on key topics as warranted, similar to the mid-year 2009 report highlighting "the bottom of congestion" and a snapshot of findings from commercial freight's impact on traffic. INRIX also published, *The Impact of Fuel Prices on Consumer Behavior and Traffic Congestion* in Fall, 2008.

About INRIX and Contact Us

INRIX is a leading provider of highly accurate traffic information and driver services with more than 120 customers and industry partners in the automotive, mobile and public sector markets. The company uniquely combines real-time data from traditional sensors, a crowd-sourced network of over 4 million GPS-enabled vehicles, the world's best historical traffic speeds database and hundreds of other traffic impacting factors like accidents, construction and other local variables. As a result, INRIX offers the highest quality data and broadest coverage available for personal navigation, mapping, telematics and other location-based service applications in the car, online and on mobile devices.

Our deep expertise with traffic data, mobile apps and automotive platforms ensures partners and customers have access to the latest technologies and tools for accelerating breakthrough navigation solutions to market, providing drivers with reliable insight into the fastest routes, travel journey times and other driver services that save time and money while reducing fuel consumption. Benefits of INRIX solutions include:

- **Accurate real-time traffic information for 20 countries** including traffic information for more than 1 million miles in North America and 1 million kilometers throughout Western Europe .
- **An automotive grade traffic services platform, validated by leading OEMs and the public sector**, that customers can rely on anytime, anywhere.
- **Simplicity**. One commercial agreement, one technical interface, one data format, one set of homogeneous connected services across Europe and North America .
- **Indispensable suite of cost-effective tools and applications** including the INRIXTraffic.us Web portal -- for meeting the requirements of new U.S. regulations on Real Time System Information Management (RTSMIP) – the INRIX DevZone, and a collection of innovative mobile apps that are available for white label opportunities.
- **Scalability** across desktop, in-vehicle and mobile device platforms .
- **Support for all standard delivery protocols:** TPEG over IP, RDS-TMC, VoiceXML or XML .

Public Sector Solutions

Leading transportation agencies, consultants, integrators, and academic institutions use INRIX data everyday to accelerate their efforts to improve operations, planning and performance measurement for their road networks.

INRIX traffic information is available to the 16 state I-95 Corridor Coalition and government transportation agencies under contract in 13 states including Alabama, California, Delaware, Florida, Maryland, New Mexico, New Jersey, North Carolina, Pennsylvania, South Carolina, Texas, Virginia, and Washington, D.C.. Collaborating

About INRIX and Contact Us

with these early adopters, INRIX has been able to refine and hone our product offerings, pricing and licensing terms, as well as demonstrate the value of our data to the public sector.

INRIXTraffic.us is one of the ways INRIX demonstrates its commitment to helping transportation agencies fulfill their requirements for measuring system performance, streamlining operation and delivering new or improved services in a time of ever-tightening budgets and decreased federal support is. INRIXTraffic.us is a free service to aid state DOTs, Highway Patrol/State Police, and state emergency management agencies who own, operate, manage, patrol, and plan the nation's major highway system. It provides a complete, real-time picture of real-time traffic flow conditions across the U.S.—now covering over 200,000 miles. The site is available 24x7 providing agencies with a new tool to help detect and manage unusual traffic shifts associated with localized weather events, accidents, construction projects, and accelerate agencies efforts to meet the requirements of the new federal regulations on Real Time System Information Management (RTSMIP), http://www.ops.fhwa.dot.gov/1201/. INRIXTraffic.us is just one example of the set of cost-effective, easily to implement solutions INRIX offers for meeting compliance.

Quality You Can Trust

Accurate traffic reporting is a function of combining quality sources with world-class analytics. INRIX's commitment to delivering the highest quality traffic and navigation services is fueled by our passion for understanding the causes of traffic congestion and the role technology can play in improving mobility worldwide. Our commitment to quality drives us to analyze the impacts of obvious factors such as accidents, road works and road closures as well as local variables—weather, concerts, sporting events, and even school schedules—have on traffic conditions.

However, our obsessive focus on quality extends to improving the systems, processes and methods that validate, measure and verify the accuracy of incoming traffic data to INRIX every minute of every day. Using the Kaizen process, INRIX takes accuracy to new heights turning information into insight drivers can rely on to save time and money—all the while reducing their impact on the environment.

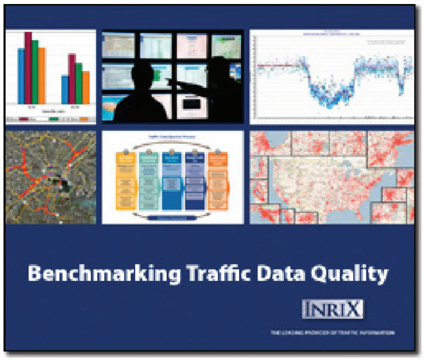


Figure 23: *Benchmarking Trafiic Data Quality Technical Primer*

In an effort to further industry efforts to create standards for analyzing the quality of traffic information, INRIX recently published Benchmarking Traffic Data Quality: Best Practices for Analyzing the Quality of Traffic Information (see Figure 23), which is available at www.inrix.com. This 60-page technical primer provides a benchmark from which to evaluate the many

About INRIX and Contact Us

components that make up the quality of traffic information. With respect to data integrity and quality, INRIX leads the industry with its sharp focus on quality using intelligent data fusion, advanced analytics and extensive quality processes.

Innovative Technologies

INRIX's continuous cycle of innovation fuels customers' development of breakthrough navigation and location-based service applications. Our innovations in predictive, historical and real-time traffic technologies and solutions enable our customers to introduce enhanced products and services using accurate time estimation and dynamic route guidance capabilities—all critical for the next generation of navigation solutions.

One example of INRIX innovation at work, our SpeedWaves™ technology improves the accuracy of traffic information on arterials, city streets and secondary roads by up to 70 percent compared to other approaches. Unlike other traffic services that mistakenly treat arterials like stretches of uninterrupted highway, INRIX's SpeedWaves accurately calculates profiles of speed distributions per road segment factoring in the impact that stop signs and other traffic control devices have on the billions of data points INRIX receives from its crowd-sourced Smart Driver network. This enables INRIX to use precise, real-time information from these vehicles to accurately report traffic information throughout the road network, resulting in a true picture of actual traffic conditions on secondary roadways. The result is not merely an average of information from separate vehicles traveling on the same roadway, but an analysis of data from individual vehicle reports that accurately determines real-time congestion across the road segment.

Building on these breakthroughs, INRIX recently introduced XD™ Traffic—a new premium real-time and predictive traffic service optimized for the delivery of next generation of navigation and driver services applications in the car, on mobile devices and online. XD Traffic removes the remaining quality and reliability barriers holding back the delivery of new traffic-powered applications that make navigation more useful every day.

Today's navigation apps come in many shapes and forms, ranging from simple color-coded traffic maps in car navigation systems to traffic, speed trap and "social driving" apps on GPS smartphones and other devices. However, the quality of the traffic information powering these solutions varies greatly depending on the provider, delivery method and type of device. Too often, providers miscalculate routes, travel times and ETAs as well as miss important road closures or other traffic impacting events. As a result, automakers and navigation providers have been reluctant to introduce new, more useful traffic-powered solutions over concerns of reliability and customer satisfaction. XD Traffic addresses this challenge.

About INRIX and Contact Us

Further showcasing the company's expertise in the mobile technology market, INRIX recently introduced INRIX Traffic! and INRIX Traffic! Pro, the first mobile apps to help drivers save time traveling to the places they go every day with the fastest route, recommended departure time, travel time and ETA for any destination.

World-leading Development Tools

INRIX's Connected Services platform provides you with a suite of development tools and driver services that fast-tracks your success. The INRIX Dev Zone provides access to hundreds of APIs, sample applications and code libraries, INRIX's 3rd Generation Routing Engine as well as driver services content like refueling and recharging locations that speed the delivery of breakthrough traffic-powered applications in the car, on mobile devices and online.

As INRIX sets the pace for the industry with the latest technical advancements and connected services offerings, our customers benefit from a built-in agility that gets your solutions to market ahead of the competition and helps you differentiate your products with the latest innovations.

Contact Us

Business Contacts

Inquiries from public agencies and potential industry partners to build upon this Scorecard should contact:

Rick Schuman, Vice President of Public Sector, INRIX
rick@inrix.com

Inquiries from commercial enterprises seeking to utilize INRIX traffic information in their automotive, mobile, and online navigation solutions should contact:

Kush Parikh, Senior Vice President of Business Development, INRIX
kush@inrix.com

Media Contact

Press inquiries related to this Scorecard should contact:

Jim Bak
425-284-3825
jimb@inrix.com

Appendix A | Top 100 Metropolitan Scorecards

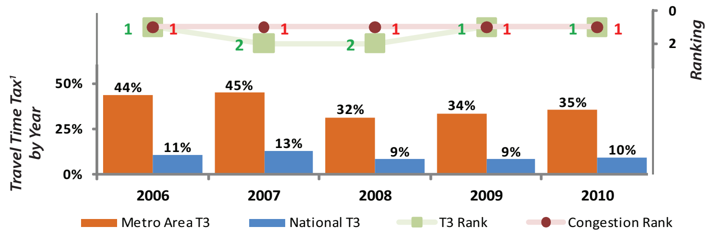
This Appendix contains the 100 Metropolitan Scorecard Summary sheets in national congestion rank order. The *Trends* section includes five years of national rankings and trend data, and a graph showing the monthly changes in Travel Time Tax for 2008, 2009 and 2010. The *Patterns* section includes a chart of the region's Travel Time Tax for each day of the week in 15 minute increments (vs. one hour averages of previous years), highlighting the most congested time each week. The *Impact* section highlights the region's employment changes since 2006 and the changes in congestion levels over the same period, also providing comparisons to national figures. The *Congested Corridors and Bottlenecks* section expands upon previous *Bottlenecks* sections and include the area's most congested corridors. The most congested corridors and bottlenecks are listed, up to ten in each metropolitan area.

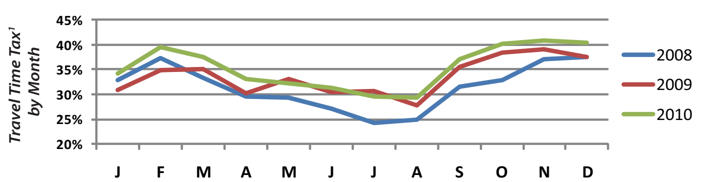
#1 Los Angeles Metropolitan Area

National Congestion Rank: #1

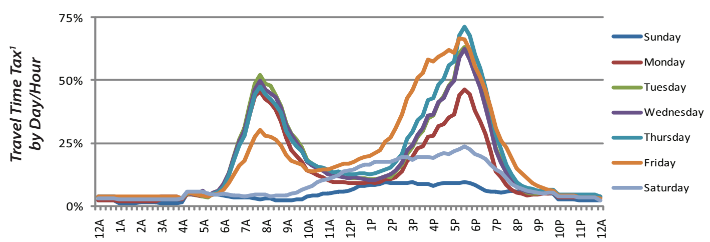
Population Rank: #2 (12,875,000)

Trends *for Peak Period[2] Congestion in Metro Area*





Patterns *for 2010 Congestion in Metro Area*



What Was the Worst Time? Thursday, 5:30-5:45 PM *[71% Travel Time Tax[1]]*

CBSA[4]: Los Angeles-Long Beach-Santa Ana CA

Impact *of Employment Changes*

	Total Employment				Travel Time Tax[1]			
	2006	2010	Change Total	Change %	2006	2010	Change Total	Change %
Metro Area	5695 K	5170 K	-525 K	-9.2%	43.7%	35.4%	-8.3%	-19.0%
Top 100 Metros	93.3 M	87.9 M	-5.4 M	-5.8%	11.1%	9.7%	-1.4%	-12.7%
National	136.9 M	130.7 M	-6.2 M	-4.5%	N/A			

Congested Corridors and Bottlenecks *across Metro Area in 2010*

Congested Corridors[5] *(45 Total in Metro Area)*

Regional Rank	National Rank	Road/Direction	From	To	Length (miles)	Uncongested Travel Time (min)	Peak Period[2] (AM/PM)	Peak Period[2] Travel Time (min)	Peak Period[2] Tax[1](%)	Worst Hour (Day & Hour)	Worst Hour Travel Time (min)	Worst Hour Tax[1](%)
1	2	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	20	PM	57	183%	F, 4-5pm	81	302%
2	3	San Diego Fwy/I-405 NB	I-105/IMPERIAL HWY	GETTY CENTER DR	13.1	13	PM	41	224%	F, 4-5pm	53	318%
3	5	Santa Monica Fwy/I-10 EB	CA-1/LINCOLN BLVD/EX 1B	ALAMEDA ST	14.9	14	PM	42	192%	Th, 6-7pm	49	244%
4	7	I-5 SB (Santa Ana/Golden St Fwys)	EAST CEASAR CHAVEZ AVE	VALLEY VIEW AVE	17.5	18	PM	47	167%	F, 5-6pm	63	255%
5	10	San Bernadino Fwy/I-10 EB	CITY TERRACE DR/HERBERT AVE	BALDWIN PARK BLVD	12.8	13	PM	37	188%	F, 5-6pm	45	253%
6	12	San Diego Fwy/I-405 SB	NORDHOFF ST	MULHOLLAND DR	8.1	8	AM	26	225%	T, 8-9am	35	331%
7	16	Pomona Fwy/CA-60 EB	WHITTIER BLVD	BREA CANYON RD	21.7	22	PM	50	128%	F, 5-6pm	61	178%
8	30	Santa Monica Fwy/I-10 WB	I-5/GOLDEN STATE FWY	NATIONAL BLVD	12.6	12	AM	30	146%	Th, 6-7pm	43	257%
9	31	US-101 NB (Santa Ana/Hollywood Fwys)	I-5/CA-60	HASKELL AVE	21.5	22	PM	46	108%	Th, 5-6pm	59	168%
10	32	Century Fwy/I-105 EB	NASH ST	I-605	17.6	17	PM	37	124%	Th, 5-6pm	46	175%

Bottlenecks *(385 Total in Metro Area)*

Regional Rank	National Rank 2010	National Rank 2009	Road/Direction	Segment/Interchange	County	State	Length (miles)	Hours of Congestion[3]	Average Speed when Congested[3] (mph)
1	10	11	Hollywood Fwy/US-101 SB	VERMONT AVE	Los Angeles	CA	0.62	117	16.7
2	11	85	San Diego Fwy/I-405 NB	I-10/SANTA MONICA FWY	Los Angeles	CA	1.23	91	14.1
3	18	12	Hollywood Fwy/US-101 NB	ALAMEDA ST	Los Angeles	CA	0.27	102	14.0
4	19	19	Hollywood Fwy/US-101 NB	SPRING ST	Los Angeles	CA	0.14	110	16.4
5	24	22	Hollywood Fwy/US-101 SB	MELROSE AVE	Los Angeles	CA	0.35	97	17.3
6	26	38	Santa Ana Fwy/I-5 NB	E 7TH ST	Los Angeles	CA	0.26	83	13.6
7	27	27	Harbor Fwy/I-110 NB	ADAMS BLVD	Los Angeles	CA	0.13	96	17.6
8	30	24	Hollywood Fwy/US-101 SB	CA-2/SANTA MONICA BLVD	Los Angeles	CA	0.40	87	17.0
9	33	29	Hollywood Fwy/US-101 SB	SILVER LAKE BLVD	Los Angeles	CA	0.42	110	21.1
10	34	31	Hollywood Fwy/US-101 SB	NORMANDIE AVE	Los Angeles	CA	0.40	93	18.7

Notes:

1 – **Travel Time Tax** is the percentage of extra travel time (vs. "free flow") a random trip takes in the specific region and time period analyzed. A 10% tax means 10% additional trip time due to congestion.
2 – **Peak hours** are Monday to Friday, 6 to 10 AM and 3 to 7 PM.
3 – **"Hours of Congestion"** is defined as times of the week when a road segment's average hourly speed is half or less than its uncongested speed.
4 – **CBSA** stands for "Core Based Statistical Area," the official term for a functional region based around an urban center of at least 10,000 people, based on standards published by the U.S. Government's Office of Management and Budget (OMB).
5 – **Corridors** are composed of multiple contiguous bottlenecks totaling at least 3 miles in length.

Additional information on the methodologies used in this report are available at http://scorecard.inrix.com.

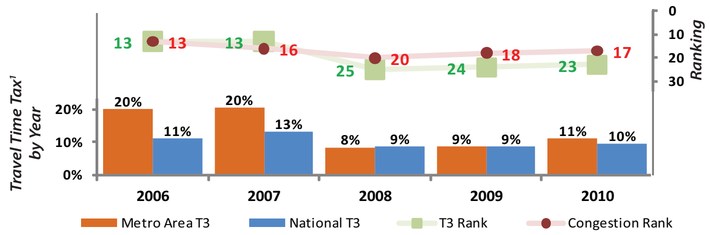
#17 Riverside Metropolitan Area

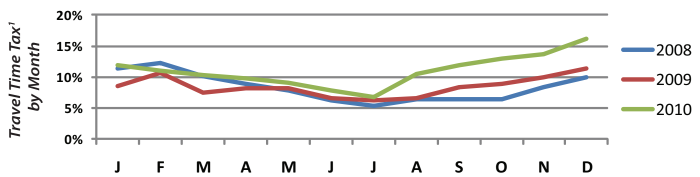
National Congestion Rank: #17

—**13%** *of Peak Period² Congestion of Nation's Worst Metro Area (L.A.)*

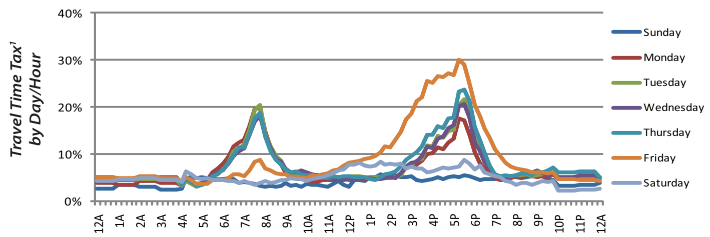
Population Rank: #14 (4,143,000)

Trends *for Peak Period² Congestion in Metro Area*





Patterns *for 2010 Congestion in Metro Area*



What Was the Worst Time? Friday, 5:15-5:30 PM *[30% Travel Time Tax¹]*

CBSA⁴: Riverside-San Bernardino-Ontario CA

Impact *of Employment Changes*

	Total Employment 2006	Total Employment 2010	Change Total	Change %	Travel Time Tax¹ 2006	Travel Time Tax¹ 2010	Change Total	Change %
Metro Area	1296 K	1106 K	-190 K	-14.7%	20.0%	11.0%	-9.0%	-45.2%
Top 100 Metros	93.3 M	87.9 M	-5.4 M	-5.8%	11.1%	9.7%	-1.4%	-12.7%
National	136.9 M	130.7 M	-6.2 M	-4.5%	N/A			

Congested Corridors and Bottlenecks *across Metro Area in 2010*

Congested Corridors⁵ *(8 Total in Metro Area)*

Regional Rank	National Rank	Road/Direction	From	To	Length (miles)	Uncongested Travel Time (min)	Peak Period² (AM/PM)	Peak Period² Travel Time (min)	Peak Period² Tax¹(%)	Worst Hour (Day & Hour)	Worst Hour Travel Time (min)	Worst Hour Tax¹(%)
1	2	Riverside Fwy/CA-91 EB	CA-55/COSTA MESA FWY	MCKINLEY ST	20.7	20	PM	57	183%	F, 4-5pm	81	302%
2	70	Riverside Fwy/CA-91 WB	MCKINLEY ST	AUTO CTR DR/SERFAS CLUB DR	5.6	5	AM	14	163%	T, 6-7am	23	337%
3	258	Corona Fwy/I-15 SB	HIDDEN VALLEY PKWY	EL CERRITO RD	5.0	5	PM	9	79%	F, 5-6pm	15	193%
4	304	Riverside Fwy/CA-91 EB	VAN BUREN BLVD	CENTRAL AVE (EAST)	4.2	4	AM	7	69%	Th, 7-8am	11	171%
5	325	Escondido Fwy/I-15 NB	CA-79/OLD TOWN FRONT ST	CA-79/WINCHESTER RD	3.2	3	PM	5	58%	F, 4-5pm	8	142%
6	327	Ontario Fwy/I-15 NB	I-210/EX 115	GLEN HELEN PKWY	6.2	6	PM	9	40%	F, 4-5pm	20	209%
7	329	Ontario Fwy/I-15 SB	4TH ST	CA-60	4.4	4	PM	6	47%	F, 5-6pm	10	132%
8	334	Ontario Fwy/I-15 NB	LIMONITE AVE	JURUPA ST	5.1	5	PM	7	40%	F, 3-4pm	10	95%

Bottlenecks *(22 Total in Metro Area)*

Regional Rank	National Rank 2010	National Rank 2009	Road/Direction	Segment/Interchange	County	State	Length (miles)	Hours of Congestion³	Average Speed when Congested³ (mph)
1	295	430	Riverside Fwy/CA-91 WB	UNIVERSITY AVE	Riverside	CA	0.29	41	20.3
2	354	744	Riverside Fwy/CA-91 WB	7TH ST	Riverside	CA	0.91	32	16.9
3	357	385	I-215	BLAINE ST/3RD ST	Riverside	CA	1.10	34	16.5
4	377	1921	Ontario Fwy/I-15 NB	GLEN HELEN PKWY	San Bernardino	CA	1.96	33	17.0
5	401	746	Riverside Fwy/CA-91 EB	CA-71	Riverside	CA	1.41	43	24.2
6	518	614	Riverside Fwy/CA-91 EB	AUTO CENTER DR/SERFAS CLUB DR	Riverside	CA	1.22	40	26.0
7	604	654	Riverside Fwy/CA-91 EB	LINCOLN AVE	Riverside	CA	1.25	37	27.0
8	740	1098	Riverside Fwy/CA-91 WB	MAIN ST (EAST)	Riverside	CA	0.79	20	16.3
9	758	878	Riverside Fwy/CA-91 WB	14TH ST	Riverside	CA	0.53	29	24.6
10	796	1945	Pomona Fwy/CA-60 EB	ORANGE ST	Riverside	CA	0.18	22	18.4

Notes:

1 – **Travel Time Tax** is the percentage of extra travel time (vs. "free flow") a random trip takes in the specific region and time period analyzed. A 10% tax means 10% additional trip time due to congestion.
2 – **Peak hours** are Monday to Friday, 6 to 10 AM and 3 to 7 PM.
3 – **"Hours of Congestion"** is defined as times of the week when a road segment's average hourly speed is half or less than its uncongested speed.
4 – **CBSA** stands for "Core Based Statistical Area," the official term for a functional region based around an urban center of at least 10,000 people, based on standards published by the U.S. Government's Office of Management and Budget (OMB).
5 – **Corridors** are composed of multiple contiguous bottlenecks totaling at least 3 miles in length.

Additional information on the methodologies used in this report are available at http://scorecard.inrix.com.

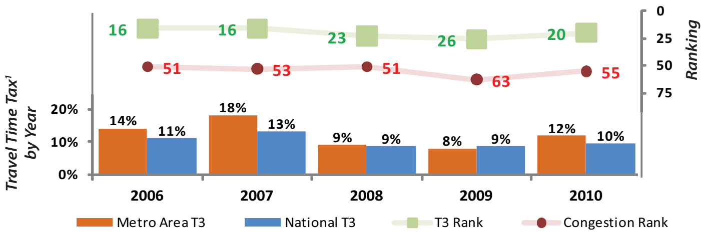
#55 Oxnard Metropolitan Area

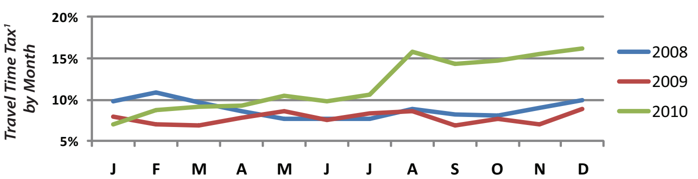
National Congestion Rank: #55

Population Rank: #65 (803,000)

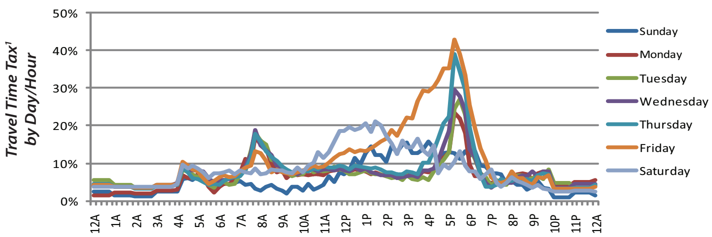
—**3%** *of Peak Period[2] Congestion of Nation's Worst Metro Area (L.A.)*

Trends *for Peak Period[2] Congestion in Metro Area*





Patterns *for 2010 Congestion in Metro Area*



What Was the Worst Time? **Friday, 5:15-5:30 PM** *[43% Travel Time Tax[1]]*

CBSA[4]: Oxnard-Thousand Oaks-Ventura CA

Impact *of Employment Changes*

	Total Employment				Travel Time Tax[1]			
	2006	2010	Change Total	Change %	2006	2010	Change Total	Change %
Metro Area	302 K	273 K	-29 K	-9.8%	14.1%	11.8%	-2.3%	-16.6%
Top 100 Metros	93.3 M	87.9 M	-5.4 M	-5.8%	11.1%	9.7%	-1.4%	-12.7%
National	136.9 M	130.7 M	-6.2 M	-4.5%	N/A			

Congested Corridors and Bottlenecks *across Metro Area in 2010*

Congested Corridors[5] *(1 Total in Metro Area)*

Regional Rank	National Rank	Road/Direction	From	To	Length (miles)	Uncongested Travel Time (min)	Peak Period[2] (AM/PM)	Peak Period[2] Travel Time (min)	Peak Period[2] Tax[1](%)	Worst Hour (Day & Hour)	Worst Hour Travel Time (min)	Worst Hour Tax[1](%)
1	298	Ventura Fwy/US-101 NB	CAMARILLO SPRINGS RD	LAS POSAS RD	5.2	5	PM	8	62%	F, 4-5pm	13	164%

Bottlenecks *(10 Total in Metro Area)*

Regional Rank	National Rank 2010	National Rank 2009	Road/Direction	Segment/Interchange	County	State	Length (miles)	Hours of Congestion[3]	Average Speed when Congested[3] (mph)
1	890	3461	Ventura Fwy/US-101 NB	LAS POSAS RD	Ventura	CA	1.16	27	25.7
2	1338	#N/A	Ventura Fwy/US-101 SB	CA-232/VINEYARD AVE	Ventura	CA	0.66	18	23.3
3	1405	3380	Ventura Fwy/US-101 NB	CARMEN DR	Ventura	CA	1.08	19	25.7
4	1595	3029	Ventura Fwy/US-101 SB	RANCHO CONEJO BLVD/BORCHARD RD	Ventura	CA	1.01	15	23.0
5	2148	4382	Ventura Fwy/US-101 NB	CA-23	Ventura	CA	1.60	11	24.4
6	3250	4448	Ventura Fwy/US-101 NB	PLEASANT VALLEY RD/SANTA ROSA RD	Ventura	CA	1.65	7	26.7
7	3349	3960	Ventura Fwy/US-101 NB	JOHNSON DR	Ventura	CA	0.74	7	28.5
8	3446	#N/A	US-101 SB	BATES RD	Santa Barbara	CA	0.61	6	26.5
9	3461	#N/A	Ventura Fwy/US-101 NB	DAWSON DR	Ventura	CA	1.27	6	26.2
10	3535	#N/A	Ventura Fwy/US-101 NB	OLD PACIFIC COAST HWY	Ventura	CA	1.98	6	27.7

Notes:

1 – **Travel Time Tax** is the percentage of extra travel time (vs. "free flow") a random trip takes in the specific region and time period analyzed. A 10% tax means 10% additional trip time due to congestion.
2 – **Peak hours** are Monday to Friday, 6 to 10 AM and 3 to 7 PM.
3 – **"Hours of Congestion"** is defined as times of the week when a road segment's average hourly speed is half or less than its uncongested speed.
4 – **CBSA** stands for "Core Based Statistical Area," the official term for a functional region based around an urban center of at least 10,000 people, based on standards published by the U.S. Government's Office of Management and Budget (OMB).
5 – **Corridors** are composed of multiple contiguous bottlenecks totaling at least 3 miles in length.

Additional information on the methodologies used in this report are available at http://scorecard.inrix.com.

#77 Bakersfield Metropolitan Area

National Congestion Rank: #77

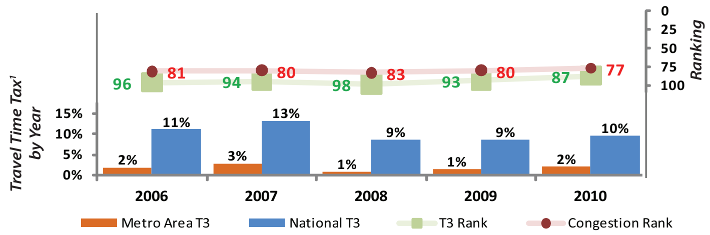
—**1%** *of Peak Period[2] Congestion of Nation's Worst Metro Area (L.A.)*

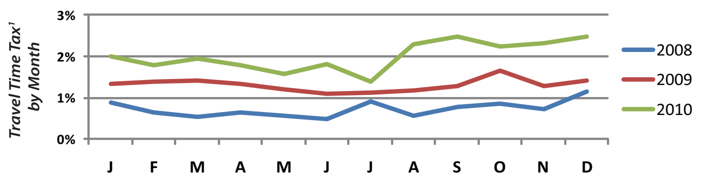
Population Rank: #63 (807,000)

CBSA[4]: Bakersfield CA

Trends

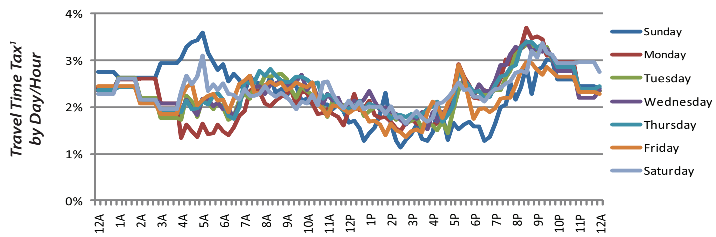
for Peak Period[2] Congestion in Metro Area





Patterns

for 2010 Congestion in Metro Area



What Was the Worst Time? **Monday, 8:30-8:45 PM** *[4% Travel Time Tax[1]]*

Impact

of Employment Changes

	Total Employment				Travel Time Tax[1]			
	2006	2010	Change Total	Change %	2006	2010	Change Total	Change %
Metro Area	237 K	224 K	-13 K	-5.8%	1.9%	2.0%	0.1%	6.4%
Top 100 Metros	93.3 M	87.9 M	-5.4 M	-5.8%	11.1%	9.7%	-1.4%	-12.7%
National	136.9 M	130.7 M	-6.2 M	-4.5%	N/A			

Congested Corridors and Bottlenecks

across Metro Area in 2010

Congested Corridors[5] *(0 Total in Metro Area)*

Bottlenecks *(0 Total in Metro Area)*

Notes:

1 – **Travel Time Tax** is the percentage of extra travel time (vs. "free flow") a random trip takes in the specific region and time period analyzed. A 10% tax means 10% additional trip time due to congestion.
2 – **Peak hours** are Monday to Friday, 6 to 10 AM and 3 to 7 PM.
3 – **"Hours of Congestion"** is defined as times of the week when a road segment's average hourly speed is half or less than its uncongested speed.
4 – **CBSA** stands for "Core Based Statistical Area," the official term for a functional region based around an urban center of at least 10,000 people, based on standards published by the U.S. Government's Office of Management and Budget (OMB).
5 – **Corridors** are composed of multiple contiguous bottlenecks totaling at least 3 miles in length.

Additional information on the methodologies used in this report are available at http://scorecard.inrix.com.

ATTACHMENT B

TURN Data Request, TURN-SCG-DR-23, Question 2

TURN DATA REQUEST
TURN-SCG-DR-23
SOCALGAS 2012 GRC – A.10-12-006
SOCALGAS RESPONSE
DATE RECEIVED: JULY 27, 2011
DATE RESPONDED: AUGUST 12, 2011

2. Please provide the spreadsheet used to produce Workpapers 23-33 to SCG-07R as Excel with active cells.

SoCalGas Response:

The attached file contains the Excel version of workpaper pp. 23-33 in Exhibit SCG-07-WP-R.

TURN DR-23 Q2 Attachment

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	HISTORICAL ORDERS					FORECAST ORDERS			ON PREMISE TIME	ON PREMISE + OFF PREMISE TIME			
	2005	2006	2007	2008	2009	2010	2011	2012	2009	2009	2010	2011	2012
									Off-premise increase per year (congestion rate) -				0.010
ORDER CATEGORY								Off-premise time per order -		10.4	10.5	10.6	10.7
CHANGE OF ACCOUNT													
TURN ON (NOT ENTERED)	748,968	713,816	685,037	744,493	867,948	837,865	807,781	777,698	4.7	15.1	15.2	15.3	15.4
CLOSE (SOFT)	665,886	637,219	620,290	677,210	739,373	723,692	708,012	692,331	3.6	14.0	14.1	14.2	14.3
TOTAL CHANGE OF ACCOUNT	1,414,854	1,351,035	1,305,327	1,421,703	1,607,321	1,561,557	1,515,793	1,470,029					
CREDIT / COLLECTIONS													
48 HOUR (1ST CALL)	30,793	31,448	36,056	42,220	35,974	36,169	36,364	36,558	5.0	15.3	15.5	15.6	15.7
COLLECT / CLOSE (2ND CALL)	386,730	390,882	414,096	414,568	335,953	358,216	380,479	402,743	8.5	18.9	19.0	19.1	19.2
RETURNED CHECK	11,117	10,631	9,493	10,447	11,290	11,189	11,087	10,986	8.9	19.3	19.4	19.5	19.6
TENANT NOTIFICATION	12,053	2	12,657	15,035	11,155	10,949	10,743	10,536	5.5	15.9	16.0	16.1	16.2
OTHER	180	186	217	113	95	118	141	164	16.9	27.3	27.4	27.5	27.6
TOTAL CREDIT / COLLECTIONS	440,873	433,149	472,519	482,383	394,467	416,641	438,814	460,988					
CSO													
CSO	380,358	364,356	342,585	315,930	317,561	330,724	343,886	357,049	21.2	31.6	31.7	31.8	31.9
CO-TEST	3,387	3,546	3,944	3,601	3,694	3,718	3,742	3,766	40.1	50.5	50.6	50.7	50.8
NO GAS	22,473	20,660	19,696	19,464	17,931	18,886	19,841	20,796	26.2	36.6	36.7	36.8	36.9
SEASONAL OFF	13,589	14,136	13,232	14,099	10,620	11,621	12,623	13,624	13.3	23.7	23.8	23.9	24.0
SEASONAL ON	101,886	117,144	117,501	97,592	90,512	96,612	102,712	108,813	19.0	29.4	29.5	29.6	29.7
TOTAL CSO	521,693	519,842	496,958	450,686	440,318	461,561	482,804	504,047					
GAS LEAK													
CSO LEAK	289,165	294,199	270,925	249,561	258,260	266,365	274,470	282,575	27.3	37.7	37.8	37.9	38.0
PILOT OUT ONLY	31,803	33,583	31,499	29,519	29,770	30,644	31,517	32,391	20.3	30.6	30.7	30.9	31.0
LEAK INVESTIGATION (STEP 2)	17,090	13,572	13,959	15,190	14,853	15,065	15,276	15,488	49.1	59.5	59.6	59.7	59.8
TOTAL GAS LEAK	338,058	341,354	316,383	294,270	302,883	312,073	321,264	330,454					
FUMIGATION													
TURN ON	93,104	80,824	61,942	55,163	53,839	59,783	65,726	71,670	33.2	43.6	43.7	43.8	43.9
CLOSE	111,651	93,351	68,673	62,085	62,273	69,095	75,916	82,738	18.0	28.4	28.5	28.6	28.7
TOTAL FUMIGATION	204,755	174,175	130,615	117,248	116,112	128,877	141,643	154,408					
HBI													
ENTERED	12,873	9,646	10,332	13,054	5,780	7,430	9,080	10,730	44.4	54.8	54.9	55.0	55.1
NOT ENTERED	10,238	9,065	9,335	12,380	6,398	7,544	8,690	9,835	17.9	28.3	28.4	28.5	28.6
TOTAL HBI	23,111	18,711	19,667	25,434	12,178	14,974	17,770	20,566					
METER WORK (CAPITAL)													
METER SET (TURN ON)	63,497	63,912	47,910	32,587	22,473	30,957	39,440	47,924	69.2	79.6	79.7	79.8	79.9
METER SET (LEFT OFF)	10,234	11,898	5,507	4,010	2,346	3,925	5,504	7,083	53.9	64.3	64.4	64.5	64.6
METER SET (PSI)	2,682	4,340	5,934	4,846	3,374	3,711	4,048	4,384	63.2	73.6	73.7	73.8	73.9
TOTAL METER WORK (CAPITAL)	76,413	80,150	59,351	41,443	28,193	38,592	48,992	59,391					

SCG Doc#260049

EF-B2

SCG Customer Service Field

B. Workload History and Forecast - ERRATA

	HISTORICAL ORDERS					FORECAST ORDERS			ON PREMISE TIME	ON PREMISE + OFF PREMISE TIME			
	2005	2006	2007	2008	2009	2010	2011	2012	2009	2009	2010	2011	2012
									Off-premise increase per year (congestion rate) -				0.010
ORDER CATEGORY									Off-premise time per order -	10.4	10.5	10.6	10.7
METER WORK (O&M)													
METER RESET (TURN ON)	2,745	2,935	2,969	2,666	2,544	2,654	2,764	2,874	79.4	89.8	89.9	90.0	90.1
METER RESET (LEFT OFF)	853	886	840	756	689	738	786	835	68.1	78.5	78.6	78.7	78.8
METER CHANGE (ENTERED)	19,228	15,233	15,739	10,900	11,741	15,675	15,507	15,339	49.8	60.2	60.3	60.4	60.5
METER CHANGE (NOT ENTERED)	160,071	156,935	131,174	139,324	143,908	157,400	155,709	154,019	31.9	42.3	42.4	42.5	42.6
METER CHANGE (SIZE)	16,041	13,046	10,116	6,858	5,066	6,925	8,783	10,642	62.8	73.2	73.3	73.4	73.5
METER REMOVE	7,820	9,228	8,809	6,859	5,325	6,182	7,038	7,895	14.9	25.3	25.4	25.5	25.6
TOTAL METER WORK (O&M)	206,758	198,263	169,647	167,363	169,273	189,573	190,589	191,604					
NONPAY TURN ON													
TURN ON	117,657	128,068	134,333	142,990	110,172	117,202	124,231	131,261	27.8	38.2	38.3	38.4	38.5
TOTAL NONPAY TURN ON	117,657	128,068	134,333	142,990	110,172	117,202	124,231	131,261					
READ / VERIFY													
VERIFY	144,096	174,780	91,859	83,685	84,105	85,750	87,396	89,041	8.8	19.2	19.3	19.4	19.5
VERIFY - SOFT CLOSE	0	-	55,524	66,345	75,890	73,759	71,629	69,498	7.2	17.6	17.7	17.8	17.9
VERIFY - SOFT CLOSE 180 DAYS	0	-	31,613	34,936	40,907	39,550	38,193	36,836	6.8	17.2	17.3	17.4	17.5
LOAD SURVEY - RES	16,653	13,756	10,642	8,140	6,409	8,128	9,848	11,567	42.8	53.2	53.3	53.4	53.5
TOTAL READ / VERIFY	160,749	188,536	189,638	193,106	207,311	207,188	207,065	206,943					
TURN ON / SHUT OFF													
TURN ON (ENTERED)	128,877	134,653	144,419	165,193	180,320	172,796	165,273	157,749	35.7	46.1	46.2	46.3	46.4
TURN ON (ENTERED GAS ON)	58,357	60,474	57,989	62,798	65,818	64,981	64,144	63,307	24.8	35.2	35.3	35.4	35.5
TURN ON (BACK ON / RESTORE)	55,851	55,657	61,807	60,850	63,236	62,701	62,167	61,632	33.3	43.6	43.8	43.9	44.0
TURN ON (PSI)	926	1,646	2,242	2,278	1,713	1,749	1,785	1,821	42.0	52.4	52.5	52.6	52.8
CLOSE (HARD)	37,444	36,107	33,617	41,883	52,268	48,746	45,225	41,703	5.1	15.5	15.6	15.7	15.8
TOTAL TURN ON / SHUT OFF	281,455	288,537	300,074	333,002	363,355	350,974	338,593	326,212					
MISCELLANEOUS													
SERVICE ORDER (MSO)	29,339	30,817	31,151	27,618	29,144	29,664	30,184	30,704	25.2	35.6	35.7	35.8	35.9
METER AND REG (MMR)	28,404	28,444	44,159	42,243	44,215	42,409	40,602	38,796	27.1	37.5	37.6	37.7	37.8
ASSIST	4,703	8,683	16,115	15,142	15,325	14,346	13,366	12,387	64.8	75.2	75.3	75.4	75.5
RELIANCE K INSPECTION	0	0	0	0	8,355	8,355	8,355	8,355	9.7	20.1	20.2	20.3	20.4
RELIANCE K CHANGE	0	0	0	0	13,554	13,554	13,554	13,554	40.7	51.1	51.2	51.3	51.4
TOTAL MISCELLANEOUS	62,446	67,944	91,425	85,003	110,593	108,327	106,061	103,796					
OTHER													
CUST / COMP ORDER	7	31	4	4	3	5	8	10	57.3	67.7	67.8	67.9	68.0
TOTAL OTHER	7	31	4	4	3	5	8	10					
FOOD INDUSTRY													
TURN ON (ENTERED)	2,311	2,558	2,611	2,747	2,778	2,750	2,722	2,695	77.9	88.3	88.4	88.5	88.7
CSO	64,759	60,304	56,660	55,739	54,773	56,726	58,678	60,631	62.0	72.4	72.5	72.6	72.7
CSO LEAK	11,562	11,942	11,508	10,704	10,182	10,653	11,124	11,595	48.0	58.4	58.5	58.6	58.7
TOTAL FOOD INDUSTRY	78,632	74,804	70,779	69,190	67,733	70,129	72,525	74,920					

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	HISTORICAL ORDERS					FORECAST ORDERS			ON PREMISE TIME	ON PREMISE + OFF PREMISE TIME			
	2005	2006	2007	2008	2009	2010	2011	2012	2009	2009	2010	2011	2012
									Off-premise increase per year (congestion rate) -				0.010
ORDER CATEGORY									Off-premise time per order -	10.4	10.5	10.6	10.7
COMMERCIAL / INDUSTRIAL													
OFF - PREMISE ORDER	0	0	0	0	0	0	0	0	-	0.0	0.0	0.0	0.0
ISO	22,455	18,834	13,895	14,054	15,958	16,537	17,117	17,696	84.1	94.5	94.6	94.7	94.8
CSO	25,309	25,924	29,225	25,258	24,070	25,017	25,963	26,910	26.0	36.4	36.5	36.6	36.7
TURN ON	15,011	16,983	21,851	22,368	21,634	21,175	20,716	20,256	37.5	47.9	48.0	48.1	48.2
FGA	0	0	0	0	0	0	0	0	-	0.0	0.0	0.0	0.0
LOAD SURVEY I / C	2,438	2,395	2,721	2,361	3,238	3,067	2,896	2,725	54.2	64.5	64.7	64.8	64.9
TOTAL COMMERCIAL / INDUSTRIAL	65,213	64,136	67,692	64,041	64,900	65,796	66,692	67,588					
ADDITIONAL PROGRAMS													
CO TEST (SB 183)	0	0	0	0	0	1,859	3,718	5,577	40.1	0.0	50.6	50.7	50.8
	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
TOTAL ADDITIONAL PROGRAMS	0	0	0	0	0	1,859	3,718	5,577					
INCOMPLETE ORDERS	283,411	308,963	307,716	300,781	323,982	321,338	318,693	316,049	8.8	19.2	19.3	19.4	19.5
TOTAL	4,276,085	4,237,698	4,132,128	4,188,647	4,318,794	4,366,667	4,395,255	4,423,842					
check	ok	ok	ok	ok	ok	ok	ok	ok					
2009 NON-JOB TIME RATE/FORECAST ----------------					**18.75%**								
GRAND TOTAL													

Note: Reduce Meter Work (Capital) by on prem hours which is forecast by Gas Distribution. Drive time and non-job time associated with capital orders is forecast by CSF in O&M

	2005	2006	2007	2008	2009	2010	2011	2012	On Premise Time 2009
METER WORK (CAPITAL)									
METER SET (TURN ON)	63,497	63,912	47,910	32,587	22,473	30,957	39,440	47,924	69.2
METER SET (LEFT OFF)	10,234	11,898	5,507	4,010	2,346	3,925	5,504	7,083	53.9
METER SET (PSI)	2,682	4,340	5,934	4,846	3,374	3,711	4,048	4,384	63.2
TOTAL METER WORK (CAPITAL) -ON PREM ONLY	**76,413**	**80,150**	**59,351**	**41,443**	**28,193**	**38,592**	**48,992**	**59,391**	**186.3**

SCG Doc#260049

EF-B4

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	TOTAL HOURS				TOTAL FTEs				DELTA FTEs			TOTAL $		
	2009	2010	2011	2012	2009	2010	2011	2012	2010	2011	2012	2009	2010	2011
ORDER CATEGORY														
CHANGE OF ACCOUNT														
TURN ON (NOT ENTERED)	218,901	212,765	206,525	200,180	104.8	101.9	99.3	95.9	-2.9	-2.6	-3.4	$7,456,266	$7,232,828	$7,020,696
CLOSE (SOFT)	172,412	170,009	167,551	165,039	82.6	81.4	80.6	79.0	-1.2	-0.9	-1.5	$5,872,736	$5,779,351	$5,695,814
TOTAL CHANGE OF ACCOUNT	391,312	382,773	374,076	365,220	187.4	183.3	179.8	174.9	-4.1	-3.5	-4.9	$13,329,002	$13,012,179	$12,716,510
CREDIT / COLLECTIONS														
48 HOUR (1ST CALL)	9,202	9,315	9,428	9,542	4.4	4.5	4.5	4.6	0.1	0.1	0.0	$313,458	$316,657	$320,504
COLLECT / CLOSE (2ND CALL)	105,864	113,500	121,213	129,003	50.7	54.4	58.3	61.8	3.7	3.9	3.5	$3,605,977	$3,858,375	$4,120,575
RETURNED CHECK	3,629	3,616	3,603	3,589	1.7	1.7	1.7	1.7	-0.01	0.00	0	$123,625	$122,930	$122,469
TENANT NOTIFICATION	2,956	2,921	2,884	2,847	1.4	1.4	1.4	1.4	0.0	0.0	0.0	$100,702	$99,288	$98,050
OTHER	43	54	65	76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$1,474	$1,835	$2,203
TOTAL CREDIT / COLLECTIONS	121,696	129,406	137,193	145,057	58.3	62.0	66.0	69.5	3.7	4.0	3.5	$4,145,235	$4,399,085	$4,663,801
CSO														
CSO	167,191	174,694	182,242	189,836	80.1	83.7	87.6	90.9	3.6	4.0	3.3	$5,694,912	$5,938,621	$6,195,220
CO-TEST	3,111	3,138	3,165	3,192	1.5	1.5	1.5	1.5	0.0	0.0	0.0	$105,983	$106,681	$107,594
NO GAS	10,934	11,549	12,168	12,789	5.2	5.5	5.8	6.1	0.3	0.3	0.3	$372,446	$392,612	$413,631
SEASONAL OFF	4,187	4,602	5,020	5,442	2.0	2.2	2.4	2.6	0.2	0.2	0.2	$142,611	$156,430	$170,651
SEASONAL ON	44,281	47,433	50,606	53,800	21.2	22.7	24.3	25.8	1.5	1.6	1.4	$1,508,325	$1,612,464	$1,720,325
TOTAL CSO	229,705	241,416	253,201	265,059	110.0	115.6	121.7	126.9	5.6	6.1	5.2	$7,824,276	$8,206,807	$8,607,421
GAS LEAK														
CSO LEAK	162,318	167,873	173,456	179,068	77.7	80.4	83.4	85.8	2.7	3.0	2.4	$5,528,915	$5,706,756	$5,896,562
PILOT OUT ONLY	15,205	15,705	16,207	16,713	7.3	7.5	7.8	8.0	0.2	0.3	0.2	$517,927	$533,874	$550,955
LEAK INVESTIGATION (STEP 2)	14,736	14,971	15,208	15,445	7.1	7.2	7.3	7.4	0.1	0.1	0.1	$501,927	$508,946	$516,990
TOTAL GAS LEAK	192,259	198,549	204,872	211,226	92.1	95.1	98.5	101.2	3.0	3.4	2.7	$6,548,770	$6,749,577	$6,964,507
FUMIGATION														
TURN ON	39,104	43,524	47,965	52,427	18.7	20.8	23.1	25.1	2.1	2.2	2.0	$1,331,956	$1,479,574	$1,630,545
CLOSE	29,503	32,855	36,230	39,629	14.1	15.7	17.4	19.0	1.6	1.7	1.6	$1,004,955	$1,116,890	$1,231,629
TOTAL FUMIGATION	68,607	76,379	84,195	92,056	32.9	36.6	40.5	44.1	3.7	3.9	3.6	$2,336,911	$2,596,464	$2,862,174
HBI														
ENTERED	5,277	6,796	8,321	9,852	2.5	3.3	4.0	4.7	0.7	0.7	0.7	$179,745	$231,036	$282,878
NOT ENTERED	3,018	3,572	4,130	4,691	1.4	1.7	2.0	2.2	0.3	0.3	0.3	$102,813	$121,428	$140,383
TOTAL HBI	8,295	10,368	12,451	14,543	4.0	5.0	6.0	7.0	1.0	1.0	1.0	$282,559	$352,464	$423,261
METER WORK (CAPITAL)														
METER SET (TURN ON)	29,801	41,105	52,438	63,801	14.3	19.7	25.2	30.6	5.4	5.5	5.3	$1,015,105	$1,397,347	$1,782,610
METER SET (LEFT OFF)	2,513	4,212	5,915	7,625	1.2	2.0	2.8	3.7	0.8	0.8	0.8	$85,610	$143,172	$201,090
METER SET (PSI)	4,140	4,560	4,981	5,403	2.0	2.2	2.4	2.6	0.2	0.2	0.2	$141,033	$155,021	$169,329
TOTAL METER WORK (CAPITAL)	36,455	49,877	63,335	76,828	17.5	23.9	30.4	36.8	6.4	6.6	6.3	$1,241,749	$1,695,540	$2,153,028

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	TOTAL HOURS				TOTAL FTEs				DELTA FTEs			TOTAL $		
	2009	2010	2011	2012	2009	2010	2011	2012	2010	2011	2012	2009	2010	2011
ORDER CATEGORY														
METER WORK (O&M)														
METER RESET (TURN ON)	3,808	3,977	4,147	4,317	1.8	1.9	2.0	2.1	0.1	0.1	0.1	$129,708	$135,205	$140,973
METER RESET (LEFT OFF)	902	967	1,032	1,097	0.4	0.5	0.5	0.5	0.0	0.0	0.0	$30,718	$32,864	$35,077
METER CHANGE (ENTERED)	11,787	15,764	15,621	15,478	5.6	7.5	7.5	7.4	1.9	0.0	-0.1	$401,490	$535,884	$531,042
METER CHANGE (NOT ENTERED)	101,488	111,275	110,350	109,419	48.6	53.3	53.1	52.4	4.7	-0.2	-0.6	$3,456,913	$3,782,748	$3,751,291
METER CHANGE (SIZE)	6,179	8,458	10,743	13,035	3.0	4.1	5.2	6.2	1.1	1.1	1.1	$210,467	$287,523	$365,218
METER REMOVE	2,247	2,619	2,994	3,372	1.1	1.3	1.4	1.6	0.2	0.2	0.2	$76,531	$89,031	$101,784
TOTAL METER WORK (O&M)	126,410	143,060	144,888	146,719	60.5	68.5	69.7	70.3	8.0	1.1	0.6	$4,305,827	$4,863,256	$4,925,386
NONPAY TURN ON														
TURN ON	70,062	74,735	79,433	84,155	33.6	35.8	38.2	40.3	2.2	2.4	2.1	$2,386,465	$2,540,582	$2,700,278
TOTAL NONPAY TURN ON	70,062	74,735	79,433	84,155	33.6	35.8	38.2	40.3	2.2	2.4	2.1	$2,386,465	$2,540,582	$2,700,278
READ / VERIFY														
VERIFY	26,901	27,576	28,256	28,943	12.9	13.2	13.6	13.9	0.3	0.4	0.3	$916,315	$937,430	$960,564
VERIFY - SOFT CLOSE	22,261	21,764	21,259	20,747	10.7	10.4	10.2	9.9	-0.2	-0.2	-0.3	$758,260	$739,847	$722,692
VERIFY - SOFT CLOSE 180 DAYS	11,698	11,378	11,054	10,725	5.6	5.4	5.3	5.1	-0.2	-0.1	-0.2	$398,450	$386,794	$375,773
LOAD SURVEY - RES	5,681	7,219	8,763	10,313	2.7	3.5	4.2	4.9	0.7	0.8	0.7	$193,497	$245,397	$297,885
TOTAL READ / VERIFY	66,540	67,937	69,332	70,728	31.9	32.5	33.3	33.9	0.7	0.8	0.5	$2,266,522	$2,309,468	$2,356,913
TURN ON / SHUT OFF														
TURN ON (ENTERED)	138,418	132,942	127,440	121,912	66.3	63.7	61.3	58.4	-2.6	-2.4	-2.9	$4,714,851	$4,519,304	$4,332,259
TURN ON (ENTERED GAS ON)	38,572	38,194	37,814	37,430	18.5	18.3	18.2	17.9	-0.2	-0.1	-0.3	$1,313,859	$1,298,396	$1,285,450
TURN ON (BACK ON / RESTORE)	46,001	45,721	45,439	45,155	22.0	21.9	21.8	21.6	-0.1	-0.1	-0.2	$1,566,917	$1,554,268	$1,544,676
TURN ON (PSI)	1,497	1,532	1,566	1,601	0.7	0.7	0.8	0.8	0.0	0.0	0.0	$50,997	$52,071	$53,250
CLOSE (HARD)	13,528	12,701	11,861	11,010	6.5	6.1	5.7	5.3	-0.4	-0.4	-0.4	$460,785	$431,752	$403,223
TOTAL TURN ON / SHUT OFF	238,017	231,090	224,121	217,108	114.0	110.7	107.8	104.0	-3.3	-2.9	-3.8	$8,107,410	$7,855,791	$7,618,858
MISCELLANEOUS														
SERVICE ORDER (MSO)	17,283	17,643	18,005	18,368	8.3	8.4	8.7	8.8	0.2	0.2	0.1	$588,711	$599,767	$612,057
METER AND REG (MMR)	27,631	26,576	25,514	24,446	13.2	12.7	12.3	11.7	-0.5	-0.5	-0.6	$941,181	$903,430	$867,341
ASSIST	19,200	17,998	16,792	15,583	9.2	8.6	8.1	7.5	-0.6	-0.5	-0.6	$653,995	$611,825	$570,842
RELIANCE K INSPECTION	2,799	2,814	2,828	2,843	1.3	1.3	1.4	1.4	0.0	0.0	0.0	$95,348	$95,650	$96,142
RELIANCE K CHANGE	11,539	11,563	11,586	11,610	5.5	5.5	5.6	5.6	0.0	0.0	0.0	$393,060	$393,075	$393,873
TOTAL MISCELLANEOUS	78,453	76,593	74,726	72,850	37.6	36.7	35.9	34.9	-0.9	-0.8	-1.0	$2,672,295	$2,603,747	$2,540,255
OTHER														
CUST / COMP ORDER	3	6	9	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$115	$208	$300
TOTAL OTHER	3	6	9	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$115	$208	$300
FOOD INDUSTRY														
TURN ON (ENTERED)	4,090	4,054	4,018	3,982	2.0	1.9	1.9	1.9	0.0	0.0	0.0	$139,321	$137,815	$136,584
CSO	66,122	68,577	71,040	73,509	31.7	32.8	34.2	35.2	1.2	1.3	1.1	$2,252,267	$2,331,254	$2,414,956
CSO LEAK	9,906	10,383	10,861	11,341	4.7	5.0	5.2	5.4	0.2	0.2	0.2	$337,437	$352,968	$369,226
TOTAL FOOD INDUSTRY	80,119	83,015	85,919	88,831	38.4	39.8	41.3	42.5	1.4	1.5	1.2	$2,729,025	$2,822,037	$2,920,766

SCG Doc#260049

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	TOTAL HOURS				TOTAL FTEs				DELTA FTEs			TOTAL $		
	2009	2010	2011	2012	2009	2010	2011	2012	2010	2011	2012	2009	2010	2011
ORDER CATEGORY														
COMMERCIAL / INDUSTRIAL														
OFF - PREMISE ORDER	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$0	$0	$0
ISO	25,123	26,064	27,007	27,951	12.0	12.5	13.0	13.4	0.5	0.5	0.4	$855,735	$886,018	$918,073
CSO	14,607	15,225	15,846	16,470	7.0	7.3	7.6	7.9	0.3	0.3	0.3	$497,553	$517,562	$538,673
TURN ON	17,279	16,949	16,617	16,284	8.3	8.1	8.0	7.8	-0.2	-0.1	-0.2	$588,567	$576,174	$564,899
FGA	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$0	$0	$0
LOAD SURVEY I / C	3,483	3,305	3,126	2,946	1.7	1.6	1.5	1.4	-0.1	-0.1	-0.1	$118,654	$112,347	$106,256
TOTAL COMMERCIAL / INDUSTRIAL	60,492	61,542	62,596	63,652	29.0	29.5	30.1	30.5	0.5	0.6	0.4	$2,060,510	$2,092,101	$2,127,901
ADDITIONAL PROGRAMS														
CO TEST (SB 183)	0	1,569	3,145	4,727	0.0	0.8	1.5	2.3	0.8	0.8	0.8	$0	$53,341	$106,900
	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$0	$0	$0
	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	$0	$0	$0
TOTAL ADDITIONAL PROGRAMS	0	1,569	3,145	4,727	0.0	0.8	1.5	2.3	0.8	0.8	0.8	$0	$53,341	$106,900
INCOMPLETE ORDERS	103,602	103,313	103,015	102,708	49.6	49.5	49.5	49.2	-0.1	0.0	-0.3	$3,528,928	$3,512,074	$3,501,936
TOTAL	1,872,028	1,931,629	1,976,504	2,021,477	896.6	925.1	950.2	968.1	28.5	25.1	17.9	$63,765,599	$65,664,719	$67,190,198
check														
2009 NON-JOB TIME RATE/FORECAST ----------------	351,061	362,238	370,654	379,088	168.1	173.5	178.2	181.6	5.4	4.7	3.4	$11,957,963	$12,314,105	$12,600,178
GRAND TOTAL	**2,223,090**	**2,293,868**	**2,347,158**	**2,400,565**	**1,065**	**1,099**	**1,128**	**1,150**	**33.9**	**29.8**	**21.3**	**$75,723,562**	**$77,978,824**	**$79,790,376**

2,182,238	2009 O&M hours (less trg 879040)
40,846	2009 capital hours
2,223,084	2009 total hours (less trg 879040)

$74,376,276	2009 O&M (less 08 retropay & 879040 trg)
$1,346,975	2009 capital (on-prem only)
$75,723,251	2009 total
$311 0.0004%	delta (model vs recorded)

Note: Reduce Meter Work (Capital) by on prem hours which is forecast by Gas Distribution. Drive time and non-job time associated with capital orders is forecast by CSF in O&M

	2009	2010	2011	2012	2009	2010	2011	2012	2010	2011	2012	2009	2010	2011
METER WORK (CAPITAL)														
METER SET (TURN ON)	25,909	35,690	45,471	55,251	12.4	17.1	21.9	26.5	4.7	4.8	4.6	$882,523	$1,213,256	$1,545,747
METER SET (LEFT OFF)	2,107	3,525	4,943	6,361	1.0	1.7	2.4	3.0	0.7	0.7	0.7	$71,770	$119,832	$168,037
METER SET (PSI)	3,556	3,911	4,266	4,621	1.7	1.9	2.1	2.2	0.2	0.2	0.2	$121,128	$132,954	$145,020
TOTAL METER WORK (CAPITAL) -ON PREM ONLY	**31,572**	**43,126**	**54,680**	**66,233**	**15.1**	**20.7**	**26.3**	**31.7**	**5.5**	**5.6**	**5.4**	**$1,075,421**	**$1,466,041**	**$1,858,804**

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

ORDER CATEGORY	2012
CHANGE OF ACCOUNT	
TURN ON (NOT ENTERED)	$6,805,022
CLOSE (SOFT)	$5,610,430
TOTAL CHANGE OF ACCOUNT	$12,415,452
CREDIT / COLLECTIONS	
48 HOUR (1ST CALL)	$324,374
COLLECT / CLOSE (2ND CALL)	$4,385,397
RETURNED CHECK	$121,997
TENANT NOTIFICATION	$96,788
OTHER	$2,573
TOTAL CREDIT / COLLECTIONS	$4,931,129
CSO	
CSO	$6,453,370
CO-TEST	$108,510
NO GAS	$434,764
SEASONAL OFF	$184,989
SEASONAL ON	$1,828,904
TOTAL CSO	$9,010,537
GAS LEAK	
CSO LEAK	$6,087,322
PILOT OUT ONLY	$568,139
LEAK INVESTIGATION (STEP 2)	$525,059
TOTAL GAS LEAK	$7,180,520
FUMIGATION	
TURN ON	$1,782,215
CLOSE	$1,347,172
TOTAL FUMIGATION	$3,129,387
HBI	
ENTERED	$334,915
NOT ENTERED	$159,473
TOTAL HBI	$494,388
METER WORK (CAPITAL)	
METER SET (TURN ON)	$2,168,871
METER SET (LEFT OFF)	$259,194
METER SET (PSI)	$183,676
TOTAL METER WORK (CAPITAL)	$2,611,742

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	2012
ORDER CATEGORY	
METER WORK (O&M)	
METER RESET (TURN ON)	$146,754
METER RESET (LEFT OFF)	$37,296
METER CHANGE (ENTERED)	$526,180
METER CHANGE (NOT ENTERED)	$3,719,635
METER CHANGE (SIZE)	$443,131
METER REMOVE	$114,639
TOTAL METER WORK (O&M)	$4,987,635
NONPAY TURN ON	
TURN ON	$2,860,803
TOTAL NONPAY TURN ON	$2,860,803
READ / VERIFY	
VERIFY	$983,891
VERIFY - SOFT CLOSE	$705,287
VERIFY - SOFT CLOSE 180 DAYS	$364,591
LOAD SURVEY - RES	$350,575
TOTAL READ / VERIFY	$2,404,344
TURN ON / SHUT OFF	
TURN ON (ENTERED)	$4,144,329
TURN ON (ENTERED GAS ON)	$1,272,406
TURN ON (BACK ON / RESTORE)	$1,535,021
TURN ON (PSI)	$54,433
CLOSE (HARD)	$374,278
TOTAL TURN ON / SHUT OFF	$7,380,468
MISCELLANEOUS	
SERVICE ORDER (MSO)	$624,407
METER AND REG (MMR)	$831,040
ASSIST	$529,744
RELIANCE K INSPECTION	$96,633
RELIANCE K CHANGE	$394,671
TOTAL MISCELLANEOUS	$2,476,496
OTHER	
CUST / COMP ORDER	$393
TOTAL OTHER	$393
FOOD INDUSTRY	
TURN ON (ENTERED)	$135,349
CSO	$2,498,889
CSO LEAK	$385,540
TOTAL FOOD INDUSTRY	$3,019,778

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

ORDER CATEGORY	2012
COMMERCIAL / INDUSTRIAL	
OFF - PREMISE ORDER	$0
ISO	$950,196
CSO	$559,896
TURN ON	$553,570
FGA	$0
LOAD SURVEY I / C	$100,145
TOTAL COMMERCIAL / INDUSTRIAL	$2,163,807
ADDITIONAL PROGRAMS	
CO TEST (SB 183)	$160,679
	$0
	$0
TOTAL ADDITIONAL PROGRAMS	$160,679
INCOMPLETE ORDERS	$3,491,487
TOTAL	$68,719,044
check	
2009 NON-JOB TIME RATE/FORECAST ----------------	$12,886,883
GRAND TOTAL	**$81,605,926**

Note: Reduce Meter Work (Capital) by on prem hours which is forecast by Gas Distribution. Drive time and non-job time associated with capital orders is forecast by CSF in O&M

METER WORK (CAPITAL)	
METER SET (TURN ON)	$1,878,237
METER SET (LEFT OFF)	$216,242
METER SET (PSI)	$157,087
TOTAL METER WORK (CAPITAL) -ON PREM ONLY	**$2,251,566**

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

	DELTA $ 2010	2011	2012
ORDER CATEGORY			
CHANGE OF ACCOUNT			
TURN ON (NOT ENTERED)	($223,438)	($212,132)	($215,674)
CLOSE (SOFT)	($93,386)	($83,537)	($85,384)
TOTAL CHANGE OF ACCOUNT	($316,824)	($295,669)	($301,058)
CREDIT / COLLECTIONS			
48 HOUR (1ST CALL)	$3,200	$3,847	$3,870
COLLECT / CLOSE (2ND CALL)	$252,398	$262,201	$264,822
RETURNED CHECK	($695)	($460)	($472)
TENANT NOTIFICATION	($1,414)	($1,238)	($1,262)
OTHER	$362	$367	$370
TOTAL CREDIT / COLLECTIONS	$253,850	$264,716	$267,327
CSO			
CSO	$243,709	$256,600	$258,150
CO-TEST	$699	$913	$916
NO GAS	$20,166	$21,020	$21,132
SEASONAL OFF	$13,819	$14,221	$14,339
SEASONAL ON	$104,139	$107,861	$108,579
TOTAL CSO	$382,531	$400,614	$403,116
GAS LEAK			
CSO LEAK	$177,841	$189,806	$190,760
PILOT OUT ONLY	$15,947	$17,081	$17,184
LEAK INVESTIGATION (STEP 2)	$7,019	$8,044	$8,069
TOTAL GAS LEAK	$200,807	$214,930	$216,013
FUMIGATION			
TURN ON	$147,618	$150,971	$151,670
CLOSE	$111,935	$114,739	$115,543
TOTAL FUMIGATION	$259,553	$265,710	$267,213
HBI			
ENTERED	$51,290	$51,842	$52,037
NOT ENTERED	$18,615	$18,955	$19,090
TOTAL HBI	$69,905	$70,797	$71,127
METER WORK (CAPITAL)			
METER SET (TURN ON)	$382,242	$385,262	$386,261
METER SET (LEFT OFF)	$57,562	$57,918	$58,104
METER SET (PSI)	$13,987	$14,308	$14,348
TOTAL METER WORK (CAPITAL)	$453,791	$457,489	$458,713

SCG Doc#260049

EF-B11

SCG Customer Service Field
B. Workload History and Forecast - ERRATA

ORDER CATEGORY	DELTA $ 2010	DELTA $ 2011	DELTA $ 2012
METER WORK (O&M)			
METER RESET (TURN ON)	$5,497	$5,768	$5,781
METER RESET (LEFT OFF)	$2,146	$2,213	$2,219
METER CHANGE (ENTERED)	$134,394	($4,842)	($4,862)
METER CHANGE (NOT ENTERED)	$325,835	($31,457)	($31,656)
METER CHANGE (SIZE)	$77,056	$77,694	$77,913
METER REMOVE	$12,500	$12,753	$12,854
TOTAL METER WORK (O&M)	$557,429	$62,130	$62,250
NONPAY TURN ON			
TURN ON	$154,116	$159,697	$160,525
TOTAL NONPAY TURN ON	$154,116	$159,697	$160,525
READ / VERIFY			
VERIFY	$21,115	$23,134	$23,327
VERIFY - SOFT CLOSE	($18,413)	($17,154)	($17,405)
VERIFY - SOFT CLOSE 180 DAYS	($11,656)	($11,022)	($11,182)
LOAD SURVEY - RES	$51,900	$52,488	$52,690
TOTAL READ / VERIFY	$42,946	$47,445	$47,431
TURN ON / SHUT OFF			
TURN ON (ENTERED)	($195,548)	($187,044)	($187,930)
TURN ON (ENTERED GAS ON)	($15,463)	($12,945)	($13,044)
TURN ON (BACK ON / RESTORE)	($12,649)	($9,592)	($9,655)
TURN ON (PSI)	$1,073	$1,179	$1,183
CLOSE (HARD)	($29,033)	($28,530)	($28,944)
TOTAL TURN ON / SHUT OFF	($251,620)	($236,932)	($238,390)
MISCELLANEOUS			
SERVICE ORDER (MSO)	$11,056	$12,289	$12,351
METER AND REG (MMR)	($37,750)	($36,089)	($36,302)
ASSIST	($42,170)	($40,983)	($41,098)
RELIANCE K INSPECTION	$302	$492	$492
RELIANCE K CHANGE	$15	$798	$798
TOTAL MISCELLANEOUS	($68,547)	($63,492)	($63,759)
OTHER			
CUST / COMP ORDER	$92	$93	$93
TOTAL OTHER	$92	$93	$93
FOOD INDUSTRY			
TURN ON (ENTERED)	($1,506)	($1,231)	($1,235)
CSO	$78,987	$83,702	$83,932
CSO LEAK	$15,531	$16,258	$16,314
TOTAL FOOD INDUSTRY	$93,012	$98,729	$99,011

SCG Customer Service Field

B. Workload History and Forecast - ERRATA

	DELTA $		
	2010	2011	2012
ORDER CATEGORY			
COMMERCIAL / INDUSTRIAL			
OFF - PREMISE ORDER	$0	$0	$0
ISO	$30,283	$32,055	$32,123
CSO	$20,009	$21,111	$21,223
TURN ON	($12,393)	($11,275)	($11,329)
FGA	$0	$0	$0
LOAD SURVEY I / C	($6,307)	($6,091)	($6,111)
TOTAL COMMERCIAL / INDUSTRIAL	$31,591	$35,800	$35,906
ADDITIONAL PROGRAMS			
CO TEST (SB 183)	$53,341	$53,560	$53,779
	$0	$0	$0
	$0	$0	$0
TOTAL ADDITIONAL PROGRAMS	$53,341	$53,560	$53,779
INCOMPLETE ORDERS	($16,854)	($10,138)	($10,449)
TOTAL	$1,899,120	$1,525,479	$1,528,846
check			
2009 NON-JOB TIME RATE/FORECAST ----------------	$356,142	$286,073	$286,704
GRAND TOTAL	**$2,255,262**	**$1,811,552**	**$1,815,550**
		3 Year Change	**$5,882,365**
			7.8%

Note: Reduce Meter Work (Capital) by on prem hours which is forecast by Gas Distribution. Drive time and non-job time associated with capital orders is forecast by CSF in O&M

	2010	2011	2012
METER WORK (CAPITAL)			
METER SET (TURN ON)	$330,733	$332,490	$332,490
METER SET (LEFT OFF)	$48,062	$48,205	$48,205
METER SET (PSI)	$11,826	$12,067	$12,067
TOTAL METER WORK (CAPITAL) -ON PREM ONLY	**$390,621**	**$392,762**	**$392,762**

TURN-SCG-DR-023 Q.2 Attachment
---> Linked to worksheet "DR-23 Q.2 Attach"

SCG Customer Service Field
H-Labor Rate Calculation

2009 Straight-time Rate

Account	Classification	FTE	Rate	Total
879.010	FSA, ETA, ETR	739	$31.94	$49,278,977
879.020	CST	70	$33.85	$4,956,199
879.030	IST	37	$38.26	$2,955,935
Other	All other accounts (less Training 879040)	5	$31.72	$341,767
903.105	Field Collections	77	$28.52	$4,600,027
Capital-New Business	FSA, ETA, ETR	17	$31.12	$1,128,028
	Total	946		$63,260,934
	Blended CSF Straight-time Labor Rate (less Training 879040)			**$32.04**

2009 Over-time Rate

Account	Classification	FTE	Rate	Total
879.010	FSA, ETA, ETR	110	$50.10	$11,558,852
879.020	CST	4	$50.52	$462,606
879.030	IST	1	$57.38	$166,692
Other	All other accounts (less Training 879040)	1	$52.89	$55,220
903.105	Field Collections	-	$0.00	$0.00
Capital-New Business	FSA, ETA, ETR	2	$47.64	$218,947
	Total	119		$12,462,317
	Blended CSF Over-time Labor Rate (less Training 879040)			**$50.17**

2009 Combined Rate

Account	Classification	FTE	Rate	Total
879.010	FSA, ETA, ETR	849	$34.31	$60,837,829
879.020	CST	75	$34.83	$5,418,805
879.030	IST	38	$38.95	$3,122,627
Other	All other accounts (less Training 879040)	6	$33.59	$396,987
903.105	Field Collections	77	$28.52	$4,600,027
Capital-New Business	FSA, ETA, ETR	20	$32.98	$1,346,975
	Total	1,065		$75,723,251
	Combined CSF Labor Rate (less Training 879040)			**$34.06**

5 Year Average - Straight-time/Over-time Ratio

Straight-time %	89%	$32.04	$28.58
Over-time %	11%	$50.17	$5.42
Forecast Wage Rate			**$33.99**

TURN-SCG-DR-023 Q.2 Attachment
---> Linked to worksheet "DR-23 Q.2 Attach"

SCG GRID Data
FTE Labor Hours Conversion as of 02/03/2010

Co_Code	**Fiscal_Year**	**Hours**	**Days**
2200	2005	2080	260
2200	2006	2080	260
2200	2007	2088	261
2200	2008	2096	262
2200	2009	2088	261
Forecast Years	2010	2088	261
	2011	2080	260
	2012	2088	261

Source: GRID Reference Report

ATTACHMENT C

TURN Data Request, TURN-SCG-DR-23, Questions 10.e. and 10.f.

TURN DATA REQUEST
TURN-SCG-DR-23
SOCALGAS 2012 GRC – A.10-12-006
SOCALGAS RESPONSE
DATE RECEIVED: JULY 27, 2011
DATE RESPONDED: AUGUST 12, 2011

10. Regarding Workpaper 102:
    a. Please provide this page in Excel format with active cells.
    b. Please provide the information on this page on a recorded basis for 2008, 2009, and 2010.
    c. Please explain how CSR level of service is calculated and provide recorded data from 2005-2010.
    d. Please explain how Occupancy is calculated and provide recorded data from 2005-2010.
    e. Please provide the number of hours paid (straight-time and overtime), the number of hours worked, the number of calls, and the overall average handle time for each month for each month from 2007-2010 recorded and 2011 to the latest available month.
    f. Please provide overall average handle time for calls on a monthly basis for 2008-2010 and supporting calculations (i.e., number of calls, number of seconds).

SoCalGas Response:

a. The attached file provides the Excel version of workpaper p. 102 found in Exhibit SCG-07-WP-R. See worksheet titled "DR-23 Q.10a Attach".

TURN DR-23 Q10
Attachment

b. Please see the file attached in response to "a" above. The worksheet titled "DR-23 Q.10b Attach" includes the 2008 through 2010 recorded data in the format shown on workpaper p. 102.

c. CSR Level of Service (or, CSR LOS) is defined as the percent of calls answered within 60 seconds of reaching the CSR queue. The denominator is total CSR calls offered (which includes abandoned calls).

   Historically, SoCalGas' LOS goal is based on overall LOS (not CSR LOS), which is defined as the percent of calls answered within 60 seconds. The calls answered include CSR answered calls within 60 seconds plus IVR completed transactions. The denominator is total calls offered (which includes abandoned calls).

Response to Question 10 (Continued)

The 2005 through 2010 CSR LOS and overall LOS are provided in the following table.

Year	CSR LOS	Overall LOS
2005	77.5%	82.6%
2006	76.4%	81.7%
2007	78.4%	83.2%
2008	72.8%	77.4%
2009	71.2%	76.0%
2010	63.8%	70.4%

d. The Occupancy calculation is -

Occupancy Rate = (CSR Talk Time + CSR After Call Work Time) / CSR Available Time

Definition of Occupancy Rate terms –

- CSR Available Time = CSR Talk Time + CSR After Call Work Time + CSR Call Wait Time
- CSR Talk Time - the time a CSR spends talking with a customer
- CSR After Call Work Time - the time a CSR requires to finish a customer transaction after the call has been terminated
- CSR Call Waiting Time – the time a CSR is waiting for the next incoming customer call

Historical occupancy rates were not tracked in 2005 and 2006. Due to transition to the new phone system and associated reporting tools, year-to-date occupancy rates are only partially available for 2009. Occupancy rates for 2007, 2008, partial year 2009, and 2010 are as follows:

Year	Occupancy Rate
2005	not available
2006	not available
2007	87.90%
2008	89.20%
2009	*88.7%
2010	87.70%
* January through September only	

Response to Question 10 (Continued)

e.& f. Please see the file attached in response to "a" above. The worksheet titled "DR-23 Q.10 e & f Attach" includes the 2007 through 2010 and June year-to-date 2011 recorded paid hours, worked hours, number of CSR answered calls and the average handle time (AHT) by month. Note that AHT is presented in number of seconds, and is calculated automatically or generated through standard reports and is not calculated separately by call center staff.

TURN DR-23 Q. 10.e & 10.f Attachment
SCG Customer Contact Center Paid Hours, Worked Hours, CSR Answered Calls & Average Handle Time

Month & Year	Paid Hours	Worked Hours	CSR Answered Calls	AHT In Seconds
Jan-07	93,277	67,377	672,447	246
Feb-07	85,750	70,874	634,013	238
Mar-07	87,389	73,970	685,409	239
Apr-07	83,718	69,500	644,055	236
May-07	90,150	77,734	640,153	230
Jun-07	74,471	60,926	596,094	232
Jul-07	84,054	68,864	591,626	223
Aug-07	85,697	76,527	612,237	225
Sep-07	72,279	62,086	536,271	221
Oct-07	84,915	78,336	637,949	218
Nov-07	80,609	70,568	614,181	219
Dec-07	80,865	68,915	653,263	221
Jan-08	95,307	72,633	730,099	216
Feb-08	88,620	72,460	677,035	224
Mar-08	86,761	73,992	706,383	225
Apr-08	92,491	76,987	701,053	225
May-08	86,767	74,034	650,089	223
Jun-08	82,953	68,806	653,401	228
Jul-08	91,190	78,174	684,521	223
Aug-08	82,379	71,213	669,538	229
Sep-08	86,443	74,709	641,091	225
Oct-08	87,461	79,049	664,490	224
Nov-08	72,644	62,775	556,649	229
Dec-08	91,880	74,271	711,990	231
Jan-09	95,330	73,692	675,563	229
Feb-09	86,725	69,968	645,325	231
Mar-09	90,122	77,153	682,147	230
Apr-09	88,983	72,021	629,562	230
May-09	77,797	65,676	562,310	234
Jun-09	81,515	66,549	598,698	234
Jul-09	79,454	66,717	587,814	231
Aug-09	75,129	65,478	577,044	234
Sep-09	75,675	62,475	549,119	233
Oct-09	84,910	79,543	524,153	269
Nov-09	83,708	73,046	563,431	273
Dec-09	94,819	75,684	619,991	272
Jan-10	89,573	71,508	623,936	264
Feb-10	87,985	72,794	581,960	283
Mar-10	98,098	85,035	675,780	275
Apr-10	88,085	70,336	567,115	278
May-10	84,612	71,761	560,895	271
Jun-10	83,386	68,909	575,661	264
Jul-10	78,816	66,855	568,950	258
Aug-10	78,725	68,535	585,641	254
Sep-10	80,025	67,736	580,335	251
Oct-10	84,517	79,245	613,719	245
Nov-10	89,219	78,641	623,866	242
Dec-10	93,578	77,712	657,344	238
Jan-11	85,727	69,410	609,365	245
Feb-11	80,833	69,149	588,635	249
Mar-11	91,946	75,333	674,531	259
Apr-11	84,631	70,012	568,399	269
May-11	84,065	69,268	546,879	264
Jun-11	79,116	65,171	558,103	260

ATTACHMENT D

TURN Data Request, TURN-SCG-DR-30, Question 4

TURN DATA REQUEST
TURN-SCG-DR-30
SOCALGAS 2012 GRC – A.10-12-006
SOCALGAS RESPONSE
DATE RECEIVED: AUGUST 18, 2011
DATE RESPONDED: SEPTEMBER 6, 2011

4) At SCG-13, p. RP-10, SoCalGas presents a table (Table SCG-RP-06) that comprises annual 2010-2012 forecasts of the O&M benefits resulting from the implementation of OpEx 20/20.
   a) Please indicate whether these benefits include those owing to Self-Service Call handling resulting from the implementation of the IVR unit. If so,
      i) Please call out the benefits stemming from Self-Service Call volume estimates for both the labor and non-labor categories for 2010-2012. Please also identify the FTE employee reduction that the labor reduction represents for each of the years.
      ii) Please identify the Self-Service Call Rate that SoCalGas assumed to make the benefit calculation in each of the years, 2010-2012.
      iii) Please indicate whether the Self-Service Call Rates were taken from (1.) "Soft vs. Hard Benefits.Dec 09.xls" (i.e., 23.6% for 2010, 27.1% for 2011, and 37.3% for 2012); (2.) the data in Table SCG-EF-15 on p. EF-36 of SCG-7R (IVR Call percentages of 17.7% (TURN calculation that considers just IVR Calls against the sum of IVR Calls and CSR Calls) in each of 2010, 2011, and 2012; or (3.) some other source. If it is from another source, please identify it. Regardless of the source, please explain your reason(s) for using the identified source.

SoCalGas Response:

a.) Exhibit No. SCG-13, p. RP-10, Table SCG-RP-06 comprises total annual 2010 through 2012 forecasts of the O&M benefits resulting from the implementation of OpEx 20/20. Workpaper p. 20 in Exhibit SCG-13-WP shows the benefits by organization that matches the numbers in Table SCG-RP-06. The Customer Service benefit includes benefits for both the self-service call handling objectives for the Customer Contact Center (CCC) resulting from the implementation of the IVR unit and eServices, in addition to the supervisor enablement objectives for customer service field (CSF).

Customer Service Incremental Benefit by Organization	In 2009$ (000)		
	2010	2011	2012
CCC Customer Care (Self-service)	($777)	($2,304)	($5,628)
CSF Supervisor Enablement	($268)	($965)	($1,398)
Total Customer Service	($1,045)	($3,269)	($7,026)

i) The benefits resulting from self-service call volume reductions are provided in the following table. The benefits were assumed to be labor only.

Response to Question 4 (Continued)

Customer Care Benefit (Self-service)	In 2009$ (000)		
	2010	2011	2012
Labor	($777)	($2,304)	($5,628)
FTE *	(9.7)	(28.8)	(70.4)

* Mr. Phillips' testimony and workpapers, Exhibits SCG-13 and SCG-13-WP, assumed a blended annual salary of $80,000 per FTE across all impacted functional organizations, including Customer Services. The above reflects self-service FTE benefits based on that assumption.

ii) The following table reflects the self-service rate that SoCalGas used to make the benefit calculation.

OpEx Benefit Assumption	2010	2011	2012
Self-service Rate	23.9%	28.7%	37.9%

iii) As discussed in response to Question 1.d.of this data request, TURN appears to be referring to a secondary Excel file that was provided in response to Question 4.c. of TURN-SCG-DR-06, “Question 4c. Customer Benefit Assumptions.xls”. This file shows the OpEx assumptions for the self-service rates created in 2006. The self-service rates shown in the 2006 document and that are referenced in this question (i.e., 23.6% for 2010, 27.1% for 2011, and 37.3% for 2012) are not the final self-service rates that were used in the OpEx benefit assumptions in Exhibits SCG-13 and SCG-13-WP.

Also stated throughout the responses to this data request, Exhibit No. SCG-07-R does not incorporate 2010-2012 OpEx benefits; therefore the CSR and IVR call volumes shown in Table SCG-EF-15 on p. EF-36 do not reflect the self-service rates used to forecast the OpEx benefits.

The self-service rates submitted in response to Question 4.a.ii above are the rates used to make the OpEx CCC benefit calculation.

ATTACHMENT E

Exhibit SCG-07-WP-R, p. 102, CSR Forecast

SCG CUSTOMER SERVICE FIELD OPERATIONS & CUSTOMER CONTACT
Workgroup 2CC000.000 Customer Contact Center Operations
CSR Forecast

	2010	2011	2012	Comments:
Annual Payroll Hours	2088	2080	2088	
Customer Service Representative (CSR) Calls Handled Forecast	7,851,895	7,916,459	7,995,026	based on forecasted active meter count
CSR Level of Service Used in Forecast	71%	71%	71%	2008 target
Occupancy	84%	84%	84%	SCG historical planning assumption
Overall Average Handle Time (AHT)	231	231	231	2009 August year-to-date AHT
Base FTEs from "Eworkforce "	288.9	291.3	294.6	
Annual Absence Shrinkage Factor (less training %)	33.0%	33.0%	33.0%	Includes all paid absences (vacation, holiday, sick, jury duty and other non productive time such as bereavement and personal business), paid breaks and water breaks
Other Staff Shrinkage	3.8%	3.9%	3.8%	Read & review, training, other non-call, non-email CSR work such as high bill call backs
Total Shrinkage	37%	37%	37%	
FTEs Required for Shrinkage	169	170	172	
Total FTEs Required with Absence & Training Shrinkage	457.6	461.4	466.2	
Less Set Desk FTEs (Capital)	-14	-14	-14	Based on 2008 (less O&C portion of FTE; 18.1 Set Desk FTE less 4.6 O&M FTE = 13.5 Capital FTE)
E-mail FTEs	10	10	10	
CSR Less Set Desk + E-mail FTEs	454	457	462	
Overtime FTEs	13	13	13	Based on average of 2007, 2008 and year-to-date September 2009
Add New CSR Training	11	11	11	
CSR FTEs	477.9	481.7	486.5	CSR FTEs (High Bill Investigation & Multi-lingual representatives) included in this total are forecast in workgroup 2CC001.000 CCC Support where the applicable cost centers and historical expense reside

ATTACHMENT F

J. D. Power and Associates 2011 Gas Utility Residential Customer Satisfaction Study

2011 Gas Utility Residential Customer Satisfaction Study℠

Prepared for:

Southern California Gas Company

A Sempra Energy utility®

October 4, 2011

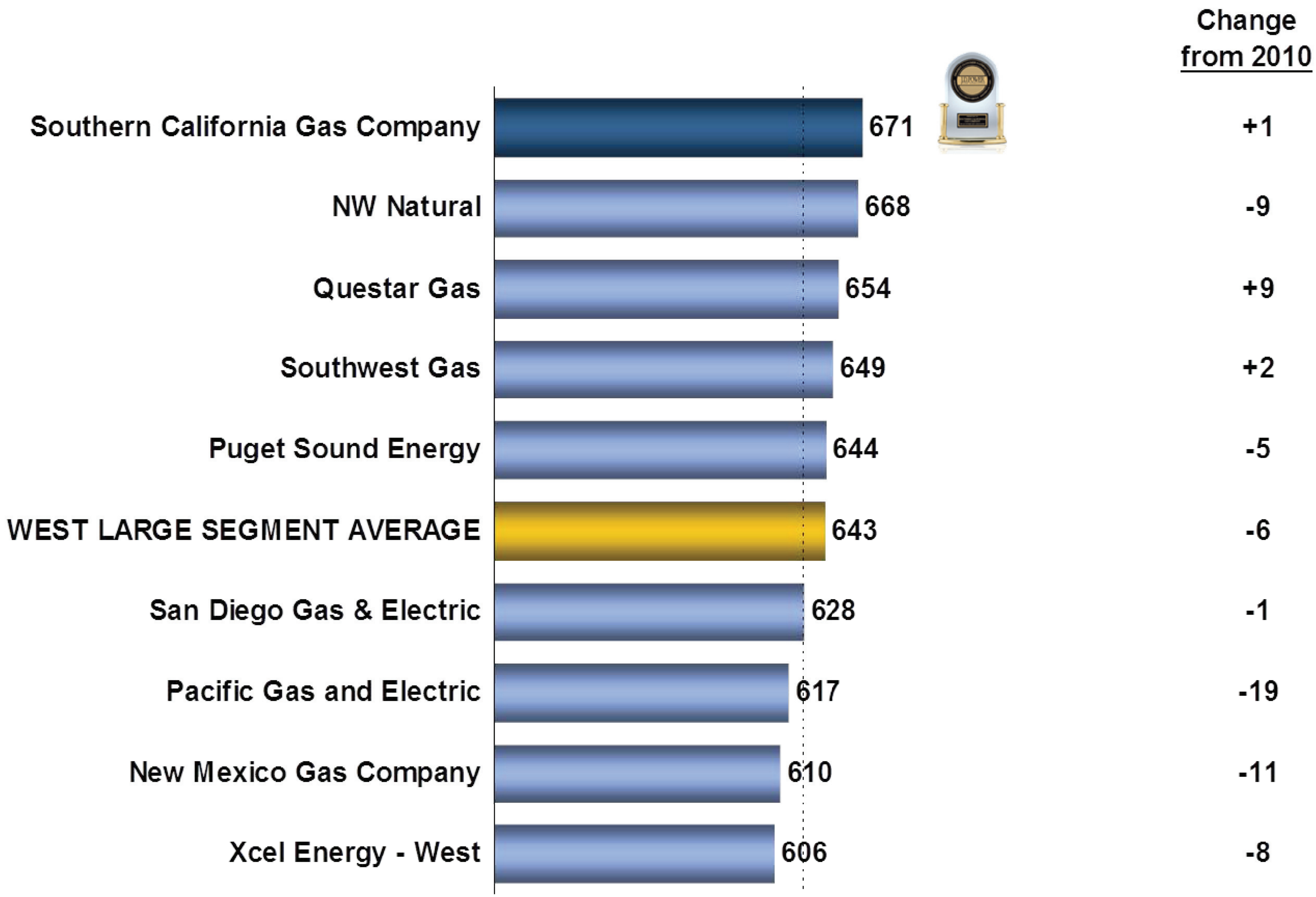
Chris Oberle
Senior Director
Energy Practice

SCG Doc#260049

The McGraw-Hill Companies

West Large Segment

Overall Customer Satisfaction Index



Industry Average: 627

Source: J.D. Power and Associates 2011 Gas Utility Residential Customer Satisfaction Study[SM]