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SUBJECT: Audit Report – Use of the Carrier Optimal Routing System
(Report Number DR-AR-10-001)

This report presents the results of a request¹ from the Acting Vice President, Delivery and Post Office Operations, to review the U.S. Postal Service's use of the Carrier Optimal Routing (COR) System (Project Number 09XG003DR000). Our objective was to review the Postal Service's use of the COR system for consolidating routes for efficient lines of travel and reducing delivery costs. This audit addressed financial and operational risks. See [Appendix A](#) for additional information about this audit.

¹ This audit was performed under a value proposition agreement between the Acting Vice President, Delivery and Operations, and the Delivery Directorate of the U.S. Postal Service Office of the Inspector General.

Conclusion

The Postal Service performed route adjustments using the COR system on 15,634 routes. However, opportunities still exist to use the COR system to consolidate carrier routes to create more efficient lines of travel and reduce delivery costs.

Use of the COR System

While the Postal Service completed 15,634 routes using the COR system, it did not complete an additional 39,237 routes in the 32 districts reviewed.² We also found that in the majority of cases it did not track reductions in vehicle mileage changes due to COR system route adjustments. Only three of the 32 districts reviewed were able to provide information concerning route mileage changes.

We identified three major factors that contributed to district officials' inability to fully utilize the COR system. Specifically:

- a. The COR system was not initially user friendly and the data preparation process is labor intensive and time consuming.
- b. Dedicated district personnel are sometimes not selected and trained as COR system subject matter experts.
- c. Postal Service Headquarters did not mandate tracking of mileage changes in the issued policy memorandums.

See [Appendix B](#) for our detailed analysis of this topic.

As a result, the Postal Service may not realize nationwide cost reductions in delivery from consolidation of carrier routes and changes in vehicle mileage. We estimated the Postal Service incurred unrecoverable supported questioned costs³ of almost \$102 million in fiscal year (FY) 2008 by not using the COR system. By using the COR system, we estimate the Postal Service could save more than \$221 million in funds put to better use⁴ over the next 2 years.⁵ See [Appendix C](#) for additional information about this issue.

We recommend the Vice President, Information Technology Solutions:

1. Resolve performance issues with the Web Carrier Optimal Routing system and implement the web-based program nationwide.

² COR system data review as of April 30, 2009.

³ Costs that are unnecessary, unreasonable, or an alleged violation of law or regulation.

⁴ Funds that could be used more efficiently by implementing recommended actions.

⁵ The monetary impact of \$323 million is conservative in that it does not include all districts within the eight areas. In addition, we did not include elimination of vehicles and reductions in vehicle mileage in the calculation.

We recommend the Vice Presidents, Capital Metro, Eastern, Great Lakes, Northeast, Southeast, and Western Area Operations:

2. Ensure district managers:
 - a. Select and train at least four individuals as Carrier Optimal Routing system subject matter experts as mandated by the Postal Service.
 - b. Complete the Data Preparation Process to include use of current Postal Service Form 3999, Inspection of Letter Carrier Route.
 - c. Complete all route adjustments using the Carrier Optimal Routing system.

We recommend the Acting Vice President, Delivery and Post Office Operations, ensure area officials:

3. Mandate districts to track and monitor vehicle mileage changes in the Carrier Optimal Routing system.

Management's Comments

The Vice President, Information Technology Solutions (IT), agreed with the finding and recommendation 1. Management stated in July 2009, they presented a workshop addressing performance issues to the Web COR (WebCOR) Performance Team, which consisted of vendors and IT representatives. In addition, management stated that customers have requested several software change requests to enhance the WebCOR application. Finally, management stated all work will be completed by December 31, 2009, and they will place the WebCOR application into production and officially retire the COR.

Four of the six areas agreed with the finding and recommendation 2a. For these areas, management stated they have trained subject matter experts for their districts. However, some districts have lost subject matter experts due to retirements and movement within the districts. To satisfy this requirement, management stated they will train additional staff to ensure district offices have the recommended number of trained subject matter experts for the data preparation and route adjustment processes. In addition, the Acting Vice President, Delivery and Post Office Operations, indicated that headquarters is assisting by developing and completing extensive training in all areas, and they conducted national and area webinar training and provided hands-on assistance to districts and areas to further the use of the COR system.

Eastern and Great Lakes Areas disagreed with the finding and recommendation 2a. Area management stated Postal Service Headquarters did not mandate the selection and training of four subject matter experts in each district, but the mandate was for

individuals to be selected and trained at the area level. Eastern Area management stated they have fulfilled the requirement to train two data preparation champions and two route adjustment champions at the area level. In addition, they will continue to track and ensure that sufficient personnel in each district are trained and supported by the area subject matter experts. Great Lakes Area management stated they have met this requirement from the initial roll out of the COR system. In addition, they have trained 73 individuals on COR database preparation and 63 individuals on COR route adjustments since the inception of the program in 2005. Finally, management stated they have two additional COR route adjustment classes scheduled in September 2009.

All six areas we focused on in the report agreed with the finding and recommendation 2b. These areas have communicated to their districts through policy letters or bi-weekly teleconferences the importance of completing the COR data preparation process to include the use of the most current and accurate Postal Service (PS) Form 3999. In response to recommendation 2c, all areas we focused on agreed with the finding and recommendation stating they have already taken initiatives to ensure route adjustments are completed using the COR system. However, the Eastern and Great Lakes Areas disagreed in part with the recommendation stating the COR system can only be used on zones in delivery units using the Delivery Operating Information System (DOIS).

The Capital Metro, Southeast, and Western Areas agreed with the potential monetary impact. However, the Eastern, Great Lakes and Northeast areas disagreed with the potential monetary impact.

The Acting Vice President, Delivery and Post Office Operations, agreed with the finding and recommendation 3. Management stated tracking and monitoring of vehicle mileage will occur in all future COR adjusted zones using WebCOR. They have developed a feature in the WebCOR application that records the mileage for all routes in a delivery zone prior to adjustment using COR and automatically tracks the mileage in the zone after the COR adjustment. We have included management's comments in their entirety in [Appendix G](#).

Evaluation of Management's Comments

The U.S. Postal Service Office of Inspector General (OIG) considers management's comments responsive to recommendations 1, 2a, 2b, 2c, and 3 and management's corrective actions should resolve the issues identified in the report.

Although the Eastern and Great Lakes Areas disagreed with recommendation 2a, we consider management's comments responsive to recommendation 2a. In the Eastern Area, they use their area route adjustment champions to assist the districts and ensured the districts employees will be trained, as needed. In the Great Lakes Area, they have trained 136 employees on COR database preparation and route adjustments processes since 2005. We concluded these actions provide sufficient resources to ensure the route adjustment take place using the COR system.

As for the partial disagreement by the Eastern and Great Lakes Areas on recommendation 2c, we consider management's comments responsive and management's corrective actions should resolve the reported issues. For clarification regarding their comments, we agree that the COR system will only be used on those routes in delivery units having DOIS and many of the smaller delivery units do not have DOIS.

Finally, we do not consider the Eastern, Great Lakes, and Northeast Areas' comments to be responsive to the potential monetary impact. During the audit, we discussed the scope and methodology used to calculate the monetary impact and made management aware of the dollar amounts applicable at the district and area levels. The methodology used was sound and reasonable when calculating the COR savings.

Reporting of COR Implementation Data

Area officials did not always report accurate and complete COR system implementation data obtained from their respective district offices to the Postal Service. This occurred because area officials did not provide the managerial oversight needed to verify the integrity of the data received from districts. See [Appendix B](#) for additional information about these issues.

Inaccurate and incomplete information compromises the integrity of COR system data which could impact the program's results.

We recommend the Acting Vice President, Delivery and Post Office Operations, ensure area officials:

4. Mandate verification of the accuracy and completeness of the Carrier Optimal Routing system data received from each district to ensure data integrity.

Management's Comments

The Acting Vice President, Delivery and Post Office Operations, agreed with the finding and recommendation stating a policy will be distributed by December 31, 2009 which mandates that COR system data tracking be accurate and complete. In addition, management stated the information will be cross-referenced in the National Route Adjustment System.

Evaluation of Management's Comments

The OIG considers management's comments responsive to the recommendation and management's corrective actions should resolve the issues identified in the report.

The OIG considers all the recommendations significant, and therefore requires OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. These recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Rita Oliver, Director, Delivery, or me at (703) 248-2100.

E-Signed by Robert Batta 
VERIFY authenticity with ApproveIt
Robert J. Batta

Robert J. Batta
Deputy Assistant Inspector General
for Mission Operations

Attachments

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APPENDIX A: ADDITIONAL INFORMATION

BACKGROUND

The COR system was implemented in October 2005 and contains a carrier routing and travel optimization program used to configure compact, contiguous, safe, and efficient city carrier routes. This routing software uses specifically designed algorithms to reduce unnecessary travel and optimize park points and relays on city carrier delivery routes. The COR system is compatible with the DOIS and receives delivery and route adjustment files directly from the DOIS to complete route adjustments. The COR system is based on the Maptitude Geographic Information System (GIS)⁶ which supports a user by enabling them to visually see the street territory for a Zone Improvement Plan (ZIP) Code that is being adjusted.

The Postal Service's business goal is to use the COR system to establish safer, more efficient routes; and to reduce workhours, vehicle mileage, and delivery costs. The COR system uses actual mail volume data to create efficient travel paths while reducing park points and relays. According to the Postal Service's Corporate Planning System – FY 2009 Plan Narrative, delivery units using the COR system reduced:

- Carrier route time on average by 17 additional minutes daily for every route adjusted using COR system compared to any other adjustment method which resulted in reduced workhours.
- Vehicle mileage on average by 12 percent in COR system adjusted zones.
- Number of routes and vehicles.
- Fuel costs by optimizing travel patterns.

According to Postal Service Headquarters officials, COR is a primary part of the projected cost savings in their strategies to Congress.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to review Postal Service's use of the COR system for consolidating routes for efficient lines of travel and reducing delivery costs. Our audit scope covered route adjustments made using the COR system during the period October 1, 2005, through April 30, 2009.

⁶ A mapping software program that allows users to view, edit, and integrate maps. The software and technology are designed to facilitate the geographical visualization and analysis of either included data or custom external data.

Specifically we:

- Judgmentally selected 32 districts within the Capital Metro, Eastern, Great Lakes, Northeast, Southeast, and Western Areas⁷ that have at least seven COR zones.⁸ See [Appendix F](#) for list of selected districts.
- Reviewed 2,550 total delivery zones in 32 districts which included:
 - 764 COR zones⁹ with 15,634 COR adjusted routes.¹⁰
 - 1,786 zones/routes not adjusted using COR¹¹ with 39,237 non-COR adjusted routes.¹²
- Reviewed applicable documentation, policies, and procedures such as:
 - Handbook M-39, *Management of Delivery Services*.
 - Handbook M-41, *City Delivery Carriers Duties Responsibilities*.
 - Memorandum of Agreement between the Postal Service and the National Association of Letter Carriers (NALC) regarding the Modified Interim Alternate Route Adjustment Process – 2009 dated April 7, 2009.
 - Memorandum of Understanding between the Postal Service and NALC regarding the Interim Alternate Route Adjustment Process dated October 22, 2008.
 - Postal Service Policy Memorandum, Carrier Optimal Routing System (COR) and Route Adjustments dated January 25, 2005.
- Obtained and analyzed nationwide COR system data compiled by Postal Service Headquarters officials.
- Obtained and analyzed data for selected districts and delivery zones from the COR system, Web Enterprise Information System, Enterprise Data Warehouse (EDW), and DOIS for FYs 2005 through 2009, Quarter 2.
- Interviewed appropriate delivery operations managers at area and district levels to obtain information on the policies and procedures for performing carrier route adjustments and providing supporting performance documentation.

⁷ The New York Metro, Pacific, and Southwest Areas do not contain districts that met audit criteria.

⁸ We did not select districts with fewer than seven COR zones to limit the number of site location visits required for our review.

⁹ A zone is defined as a ZIP Code established by the Postal Service for more efficient mail delivery within a city and state.

¹⁰ A route is defined as the group of addresses to which the Postal Service assigns the same code to aid in mail delivery.

¹¹ A non-COR zone is defined as a delivery zone with routes that have not been adjusted using the COR system.

¹² A non-COR route is defined as a route that has been created from a manual DOIS route adjustment.

We conducted this audit from October 2008 through October 2009 in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. We discussed our observations and conclusions with district officials July 15 to 23, 2009, area management officials July 29 to August 4, 2009, and Postal Service management on August 10 and 17, 2009, and included their comments where appropriate. We relied on data obtained from Postal Service database systems but did not directly audit the systems. However, we performed a limited data integrity review to support our data reliance.

PRIOR AUDIT COVERAGE

The OIG has issued one report related to our objective.

Report Title	Report Number	Final Report Date	Monetary Impact	Report Results
<i>City Delivery Vehicle Mileage – Base Versus Actual – National Capping Report</i>	DR-AR-08-004	March 4, 2008	\$5.8 million	Vehicle mileage information in the Automated Vehicle Mileage Utilization System was not consistently accurate and reliable, and this impacted supervisors' effectiveness in making daily delivery and vehicle maintenance decisions. These conditions resulted in over 682,000 unsupported carrier miles. Management agreed with the recommendations.

APPENDIX B: DETAILED ANALYSIS

Use of the COR System

While the Postal Service completed 15,634 routes using the COR system, it did not complete an additional 39,237 routes in the 32 district reviewed. We also found that in the majority of cases the agency did not track reductions in vehicle mileage changes due to COR system route adjustments. Only three of the 32 districts reviewed were able to provide information concerning route mileage changes.

We identified three major factors that attributed to district officials' inability to fully utilize the COR system. Specifically:

- a. The COR system was not initially user friendly and the data preparation process is labor intensive and time consuming.
- b. Dedicated district personnel are sometimes not selected and trained as COR system subject matter experts.
- c. The Postal Service did not mandate tracking of mileage changes in the issued policy memorandums.

Route Adjustments Made Using COR system

Of the 15,634 COR adjusted routes, district officials have removed or consolidated 630 regular city routes and 250 auxiliary city routes. See Table 1 on the following page.

Table 1. Removed/Consolidated Regular and Auxiliary City Routes by District

District	Number of COR Zones	Number of COR Routes	Number of Removed/Consolidated Regular City Routes	Number of Removed/Consolidated Auxiliary City Routes	Total Removed/Consolidated Routes
Alabama	25	378	0	0	0
Appalachian	21	336	1	6	7
Arizona	8	206	22	0	22
Atlanta	49	1047	70	22	92
Baltimore	11	272	7	1	8
Boston	55	1359	74	24	98
Central Florida	17	347	27	0	27
Central Illinois	14	289	9	4	13
Cincinnati	21	426	41	12	53
Colorado/Wyoming	41	935	18	21	39
Columbus	15	310	9	1	10
Connecticut	14	342	13	2	15
Greater Indiana	38	615	54	1	55
Greater Michigan	12	207	1	5	6
Greensboro	9	94	4	3	7
Kentuckiana	23	406	13	13	26
Lakeland	31	637	41	4	45
Maine	9	165	5	0	5
Massachusetts	23	505	18	5	23
Mississippi	19	193	6	1	7
Nevada/Sierra	22	531	5	4	9
New Hampshire/Vermont	13	205	0	5	5
North Florida	15	168	4	3	7
Northern Illinois	14	412	17	13	30
Northern Ohio	35	790	0	12	12
Northern Virginia	28	698	52	20	72
Salt Lake City	16	248	4	5	9
South Florida	54	1551	45	33	78
Southeast Michigan	39	743	11	8	19
Suncoast	14	222	29	3	32
Tennessee	42	687	11	13	24
Western New York	17	310	19	6	25
Total	764	15,634	630	250	880

Source: Postal Service District Delivery Management

Further, as a result of COR route adjustments and reduction in routes, district officials in 24 of the 32 districts identified the removal of 517 city delivery vehicles. Management either reassigned the vehicles to rural routes or other delivery units, or returned them to the VMF. See Table 2 for the total number of vehicles removed for each of the 24 districts.

Table 2. Removed Vehicles by District				
District	Number of Vehicles Removed	District	Number of Vehicles Removed	Total of Vehicles Removed
Arizona	19	Lakeland	9	28
Atlanta	92	Maine	4	96
Boston	34	Massachusetts	13	47
Central Florida	9	Mississippi	7	16
Central Illinois	13	North Florida	4	17
Cincinnati	35	Northern Illinois	34	69
Colorado/Wyoming	26	Northern Ohio	13	39
Columbus	10	Northern Virginia	23	33
Connecticut	13	Southeast Michigan	19	32
Greater Indiana	30	Suncoast	32	62
Greensboro	7	Tennessee	23	30
Kentuckiana	25	Western New York	23	48
Total	313		204	517

Source: Postal Service District Delivery Management

Criteria for Using the COR System Nationwide to Adjust Routes in All Zones

To communicate the need to use the COR system to optimize and adjust routes, the Postal Service distributed several policy memorandums to area offices and signed several memorandums of agreement with NALC as shown in Table 3.

Table 3. COR System Memorandums		
Title	Date	Results
<i>Memorandum of Agreement between the Postal Service and National Association of Letter Carriers – Modified Interim Alternate Route Adjustment Process – 2009</i>	April 2009	This agreement mandated implementation of all route adjustments completed by August 31, 2009.
<i>Memorandum of Understanding between the Postal Service and National Association of Letter Carriers – Interim Alternate Route Adjustment Process</i>	October 2008	Postal Service Headquarters officials instructed all areas which have performed data preparation for COR system should utilize it for their route adjustments, as long as the timelines of the memorandum can be met.
<i>Briefing on Field Updates Focuses on Reducing Delivery Costs – Deputy Postmaster General</i>	July 2008	The Deputy Postmaster General mandated that COR database preparation be completed for all zones (approximately 6,400) and finalized by the end of FY 2009.
<i>Route Adjustment Strategy Meeting – Vice President Delivery Operations</i>	May 2008	Postal Service Headquarters officials mandated that COR system adjustments be completed at 2 – 3 districts during the fall adjustment season.
<i>Carrier Optimal Route and Route Adjustments – Vice President Delivery and Retail</i>	January 2005	Moratorium was lifted on route inspections and adjustments.

Despite Postal Service officials implementing and distribution policy changes, some district officials have not consistently made route adjustments using the COR system for all zones. As of April 30, 2009, for the 32 districts included in this OIG review, a total of 1,786 zones comprised of 39,237 routes had not been adjusted with the COR system. See Table 4 on the following page.

Table 4. Zones and Routes Not Adjusted Using COR		
District	Number of	Number of
	Zones	Routes
Alabama	34	566
Appalachian	16	250
Arizona	96	2378
Atlanta	50	890
Baltimore	58	1522
Boston	19	437
Central Florida	106	2266
Central Illinois	79	1746
Cincinnati	105	2120
Colorado/Wyoming	83	1910
Columbus	33	795
Connecticut	85	2110
Greater Indiana	82	1454
Greater Michigan	46	953
Greensboro	61	1284
Kentuckiana	45	894
Lakeland	36	852
Maine	7	114
Massachusetts	69	1534
Mississippi	14	195
Nevada/Sierra	34	860
New Hampshire/Vermont	17	308
North Florida	52	992
Northern Illinois	83	2156
Northern Ohio	97	2316
Northern Virginia	28	634
Salt Lake City	40	750
South Florida	60	1600
Southeast Michigan	49	1174
Suncoast	98	1948
Tennessee	46	892
Western New York	58	1337
Total	1,786	39,237

Source: Postal Service Headquarters and OIG Analysis

COR System Limitations

According to some district officials, they experienced challenges with implementing the COR system. The COR software was not user friendly and has limitations when preparing lines of travel for city parks, when there is more than one mailbox on different sides of the same house, and when Cluster Box Units are involved. Additionally, the COR system does not retain line of travel information once the user has exited the program. For example, inputting data preparation adjustments such as new growth in a delivery zone or a possible file corruption during the route adjustment process requires redoing the line of travel field. The COR system software does not retain these parameters since the route adjustments are performed on a standalone computer. Standalone computers are not connected to the Postal Service network; therefore, if these systems crash all entered data is lost.

To eliminate these problems, the Postal Service has developed a web-based version of the COR system called the WebCOR system. WebCOR was pre-piloted during January and February 2009. However, the WebCOR system has not been implemented nationwide because it is not operating properly and currently will not support the number of COR system users in the field. Therefore, until the Postal Service can eliminate the COR system and its application problems, the districts will continue to use the standalone desktop version.

In addition, district officials informed the OIG that the data preparation step is a very labor intensive and time consuming process, requiring approximately 2 to 4 hours to enter the data for each route. Data for each route in a zone must be downloaded from DOIS into the COR system and reviewed to ensure the routes are contiguous. In order for route adjustments to be effective (either when done manually or with the COR system), a current PS Form 3999, Inspection of Letter Carrier Route, documenting the associated route inspection must be completed and entered into DOIS.

We identified instances where district officials did not always use a current PS Form 3999 when performing the data preparation or route adjustment steps of the COR system process because they did not perform the annual route inspections mandated by Postal Service policy. As a result, COR system route adjustments made using outdated route inspection information may establish inaccurate lines of travel and possibly increase delivery costs. Five of the 32 districts reviewed had outdated¹³ PS Forms 3999 on file for 30 zones and 777 adjusted routes under their jurisdiction. See Table 5 on the following page.

¹³ These forms were more than 1 year old.

District	Number of Zones With Outdated PS Form 3999	Number of City Routes Adjusted
Arizona	3	72
Baltimore	1	42
Boston	6	174
Nevada/Sierra	18	473
Salt Lake City	2	16
Total	30	777

Source: Postal Service EDW

COR Subject Matter Experts

Each district office was required to designate four employees as COR system subject matter experts. Management should have trained at least two employees in the data preparation process and two in the route adjustment process to assist with implementation of the COR system process. See [Appendix D](#) for a flowchart of the COR database preparation process and [Appendix E](#) for a flowchart of the COR route adjustment process.

Of the 32 districts reviewed, 23 had four COR system subject matter experts, two trained to perform data preparation and two trained to perform route adjustments. However, in the remaining nine districts, fewer than two employees were trained to perform either the data preparation task or the route adjustments task. District officials had not selected and trained COR system subject matter experts because they had not made a commitment to assign staff to these positions. See Table 6.

District	Data Preparation	Route Adjustments
Atlanta	1	1
Central Florida	3	1
Greater Indiana	1	1
Greater Michigan	1	6
Greensboro	3	1
Massachusetts	1	1
Nevada/Sierra	1	1
Northern Ohio	1	1
Western New York	1	1

Source: OIG Audit Analysis of Data Provided by Districts

Tracking Changes in Route Mileage

The Postal Service's business goal is to use the COR system to establish safer, more efficient routes; and to reduce workhours, route mileage, and delivery costs. Only three of the 32 districts reviewed were able to provide information concerning route mileage changes. According to some district officials, they did not track and monitor changes in route mileage resulting from COR system adjustments. Management did not mandate this task in the issued policy memorandums. See Table 7 for examples of mileage changes to the COR system.

District	Pre-COR System Mileage	Post COR System Mileage	Total Change
Nevada/Sierra	166,780	169,204	2,424
New Hampshire/Vermont	2,476	2,381	-95
Northern Illinois	7,724	6,659	-1,065

Source: OIG Audit Analysis of Existing and Adjusted Route Summaries

- The Nevada/Sierra District provided mileage change information for seven of 22 zones which showed a total mileage increase of 2,424 miles. However, only two of the zones had current PS Forms 3999 on file; therefore, the accuracy of the mileage changes was questionable.
- The New Hampshire/Vermont District provided mileage change information for 11 of 12 COR system adjusted zones showing a total mileage decrease of 95 miles. All of the zones had a current PS Form 3999 on file. According to district officials, the time on the routes becomes the primary factor in the COR system route adjustment process. The mileage savings is a by-product of "tightening" the routes. Though they strive to find efficient travel patterns, typically it is not put in terms of route miles saved, just time saved.
- Lastly, the Northern Illinois District provided mileage change information for all zones adjusted with COR system. All of the zones had a current PS Form 3999 on file. The district showed a total mileage decrease of 1,065 miles.

As a result, the Postal Service may not realize nationwide cost reductions in delivery from consolidation of carrier routes and changes in vehicle mileage. We estimated the Postal Service incurred unrecoverable supported questioned costs in FY 2008 of \$101,820,325 by not using the COR system. By using the COR system, we estimate the Postal Service can save \$221,337,796 in funds put to better use over the next 2 years.

Reporting COR System Implementation Data

Area officials did not always report accurate and complete district COR system implementation data. The Postal Service started tracking COR system data preparation completion and route adjustments on a nationwide basis from February 2007 to February 2008. Headquarters performed sporadic COR system usage tracking from March through December 2008. Beginning in January 2009, area officials began monthly nationwide tracking of COR system usage. As of April 2009, area officials have reported to the Postal Service that their respective districts have completed route adjustments on a total of 5,172¹⁴ zones as shown in Table 8 below.

Table 8. Nationwide COR System Zone Route Adjustments Trend Analysis											
Area	Period Ending 2/26/2007	Period Ending 2/25/2008	Period Ending 6/17/2008	Period Ending 8/20/2008	Period Ending 9/30/2008	Period Ending 12/10/2008	Period Ending 1/28/2009	Period Ending 2/27/2009	Period Ending 3/31/2009	Period Ending 4/30/2009	Total Zones
Capital Metro	22	54	57	61	59	61	69	75	76	78	612
Eastern	34	46	70	71	76	95	103	109	110	113	827
Great Lakes	34	40	40	40	41	43	50	148	202	123	761
New York	0	1	2	2	3	5	15	15	16	16	75
Northeast	33	64	85	85	90	91	98	130	132	133	941
Pacific	6	6	6	6	6	1	4	5	5	5	50
Southeast	21	26	30	47	54	101	166	192	259	293	1189
Southwest	0	0	0	0	0	9	15	15	0	6	45
Western	13	39	39	36	35	56	105	117	116	116	672
National	163	276	329	348	364	462	625	806	916	883	5,172

Source: Postal Service Headquarters COR Program Manager

Although area officials are reporting COR system implementation data, they did not always report accurate and complete data obtained from their respective district offices to management. Specifically, of the 32 districts reviewed, we identified four with major differences between what they reported as adjusted zones and those zones they actually adjusted using the COR system. See Table 9 on the following page for reported and actual zones adjusted by district.

¹⁴ The 5,172 zones represent all nine areas to include the 764 zones for the 32 districts the OIG reviewed.

Table 9. Reported and Actual Zones Adjusted by District		
District	Reported Zones Adjusted	Actual Zones Adjusted
Greater Indiana	13	38
Lakeland	57	31
Northern Illinois	87	14
Capital District ¹⁵	25	N/A

Source: OIG Audit Analysis of Existing and Adjusted Route Summaries

According to Great Lakes Area officials, the errors in the data for their three districts was the result of errors that occurred while they were entering data in the area summary spreadsheets for the Postal Service. In addition, Capital District officials reported 25 COR system adjusted zones to the Capital Metro Area office. However, district officials were unable to provide credible supporting documentation to substantiate whether adjustments were performed.

Area officials did not provide adequate managerial oversight needed to verify the integrity of the data received from district officials prior to submission to the Postal Service. Inaccurate and incomplete information compromises the integrity of the COR system data which could impact the program's results.

¹⁵ Capital District officials did not provide supporting documentation to substantiate whether they made adjustments using the COR system.

APPENDIX C: OIG CALCULATION OF MONETARY IMPACT

We estimated the monetary impact for each of the 32 districts reviewed for 3 years, from FYs 2008 through 2010. The OIG identified \$101,820,325 in unrecoverable supported questioned costs in FY 2008 for city routes in the 32 districts reviewed that were not making adjustments using the COR system. We estimated the Postal Service could save \$221,337,796 in funds put to better use over the next 2 years by implementing the COR system for city routes not adjusted.

This districts reviewed in this audit had fully implemented the COR system to perform route adjustments. We estimated the total monetary impact by area and district for 3 years from FY's 2008 through 2010. See Tables 10 and 11, respectively.

Area	Questioned Costs FY 2008	Funds Put to Better Use FY 2009	Funds Put to Better Use FY 2010	Total Monetary Impact Over 3 Years
Capital Metro	\$9,096,808	\$9,692,476	\$10,082,234	\$28,871,519
Eastern	15,968,113	17,013,721	17,697,884	50,679,717
Great Lakes	26,277,935	27,998,641	29,124,534	83,401,110
Northeast	23,081,462	24,592,859	25,581,798	73,256,119
Southeast	18,393,979	19,598,435	20,386,536	58,378,951
Western	9,002,028	9,591,490	9,977,187	28,570,705
Total	\$101,820,325	\$108,487,622	\$112,850,174	\$323,158,121

¹⁶ Totals may not add up due to rounding.

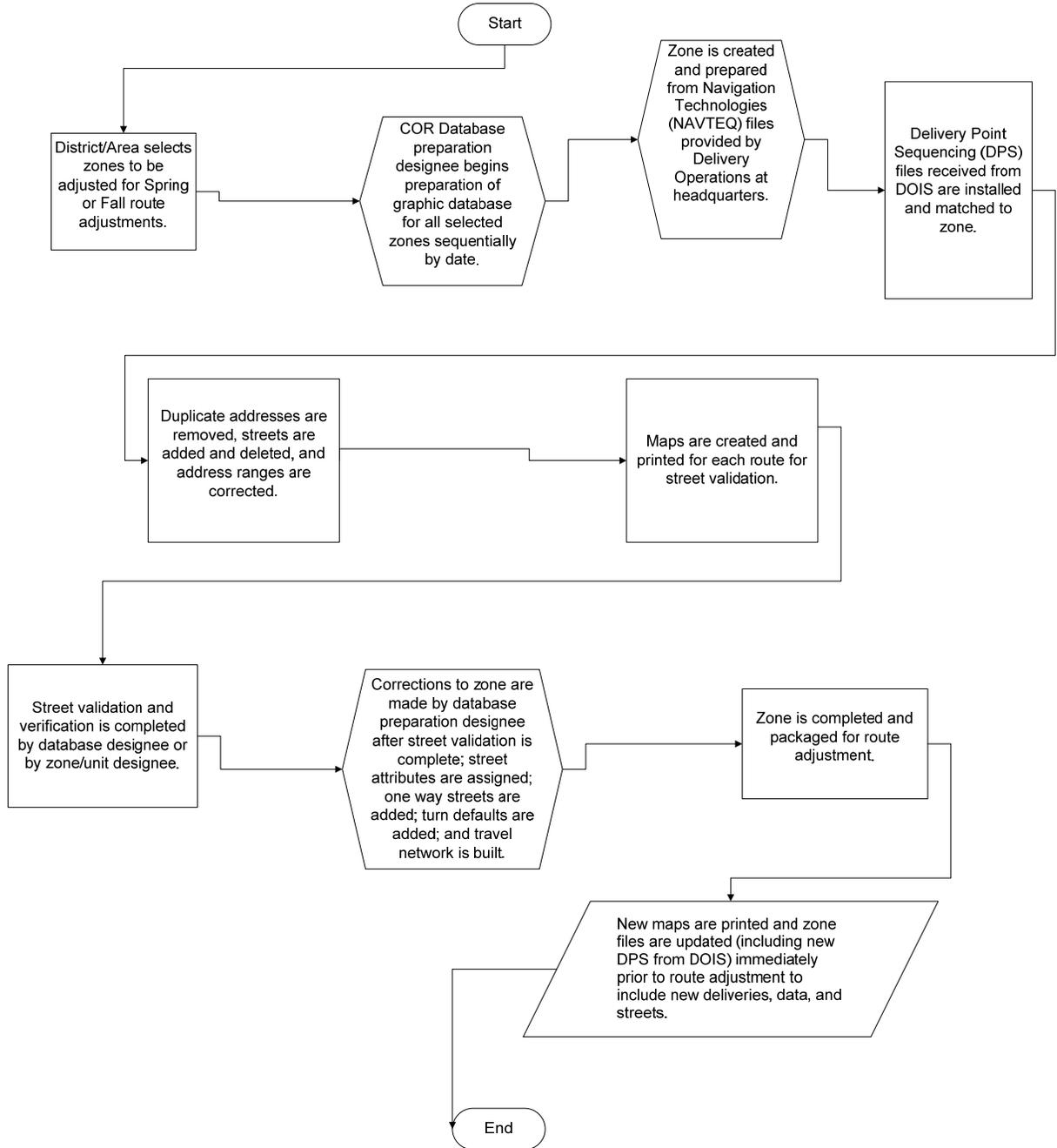
Table 11. Total Monetary Impact by District¹⁷				
District	Annual Savings FY 2008 (52 Weeks)	Annual Savings FY 2009 (52 Weeks)	Annual Savings FY 2010 (52 Weeks)	District Totals for 3 Years
Alabama	\$360,433	\$384,035	\$399,478	\$1,143,945
Appalachian	191,042	203,552	211,737	606,331
Arizona	6,607,979	7,040,676	7,323,799	20,972,453
Atlanta	2,442,215	2,602,134	2,706,772	7,751,121
Baltimore	4,581,773	4,881,792	5,078,101	14,541,665
Boston	1,917,636	2,043,205	2,125,367	6,086,208
Central Florida	6,113,098	6,513,390	6,775,309	19,401,798
Central Illinois	8,551,261	9,111,206	9,477,590	27,140,057
Cincinnati	10,014,784	10,670,562	11,099,651	31,784,997
Colorado/Wyoming	1,149,959	1,225,259	1,274,530	3,649,748
Columbus	1,187,415	1,265,168	1,316,043	3,768,626
Connecticut	6,864,902	7,314,422	7,608,553	21,787,877
Greater Indiana	5,639,684	6,008,976	6,250,612	17,899,272
Greater Michigan	783,424	834,723	868,290	2,486,437
Greensboro	2,988,179	3,183,848	3,311,878	9,483,906
Kentuckiana	2,215,118	2,360,166	2,455,074	7,030,358
Lakeland	2,061,728	2,196,732	2,285,068	6,543,529
Maine	368,260	392,374	408,152	1,168,787
Massachusetts	5,488,193	5,847,566	6,082,710	17,418,469
Mississippi	453,812	483,528	502,972	1,440,313
Nevada/Sierra	697,015	742,656	772,520	2,212,191
New Hampshire/Vermont	795,245	847,319	881,392	2,523,956
North Florida	2,078,911	2,215,040	2,304,112	6,598,062
Northern Illinois	7,189,303	7,660,066	7,968,096	22,817,465
Northern Ohio	2,359,754	2,514,273	2,615,378	7,489,406
Northern Virginia	1,526,856	1,626,836	1,692,255	4,845,948
Salt Lake City	547,076	582,899	606,338	1,736,313
South Florida	1,593,177	1,697,500	1,765,760	5,056,437
Southeast Michigan	2,052,535	2,186,937	2,274,879	6,514,351
Suncoast	4,691,350	4,998,544	5,199,548	14,889,442
Tennessee	660,983	704,265	732,585	2,097,833
Western New York	7,647,226	8,147,974	8,475,624	24,270,823
Total	\$101,820,325	\$108,487,622	\$112,850,174	\$323,158,121

¹⁷ Totals may not add up due to rounding.

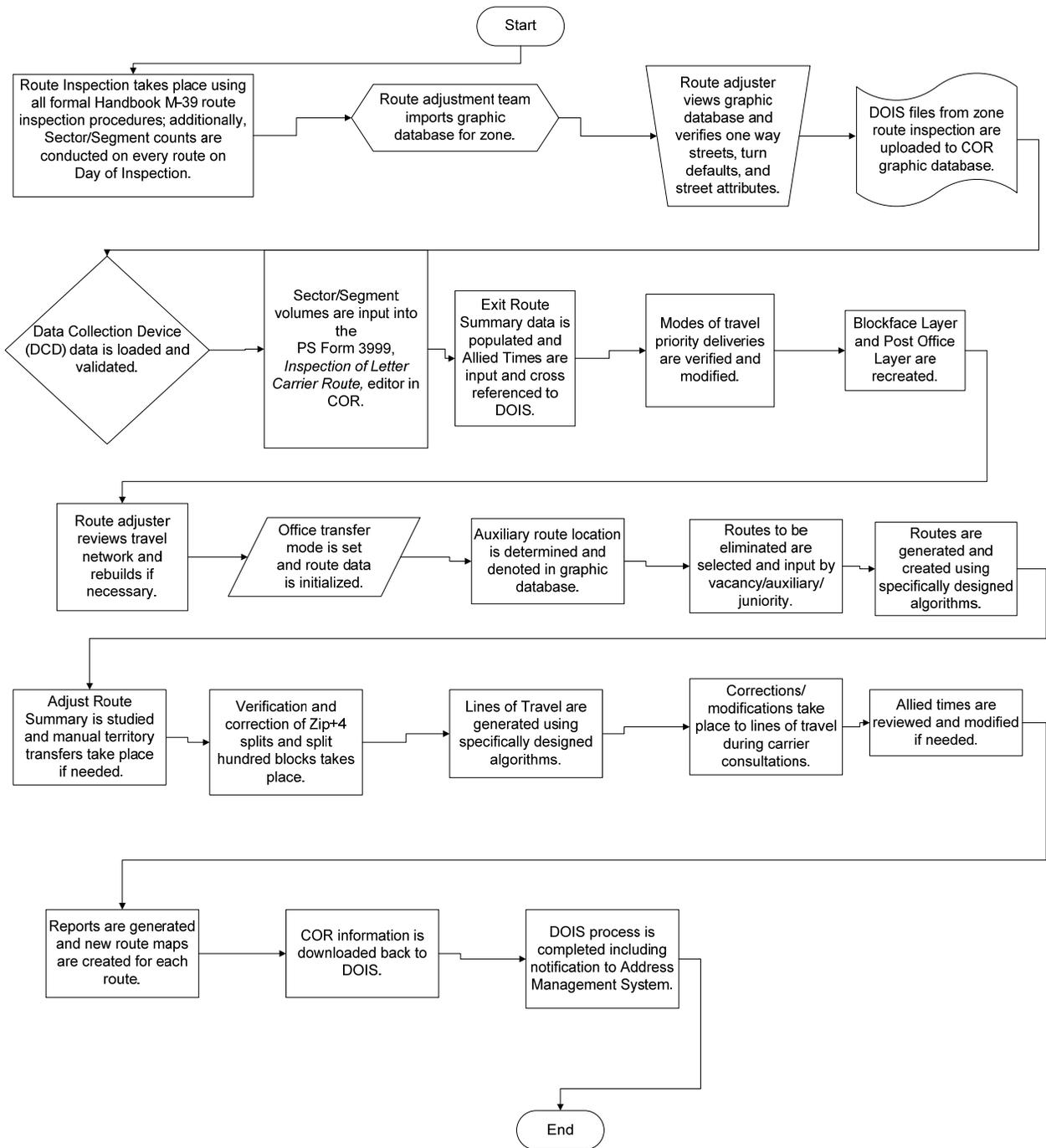
Notes:

- We calculated unrecoverable supported questioned costs using the estimated total average hours per day on routes in the 32 reviewed districts that had not been adjusted using the COR system multiplied by the city letter carrier level 2 annual overtime rate for FY 2008.
- We calculated funds put to better use for FYs 2009 and 2010 using the city letter carrier level 2 annual overtime rate for FYs 2009 and 2010.
- The escalation factor from FYs 2008 to 2009 is \$1.61.
- The escalation factor from FYs 2009 to 2010 is \$1.07.
- The escalation factor is based on the Postal Service's National Average Labor Rates Table, FY 2008 Actual and FYs 2009 and 2010 Projections.

APPENDIX D: COR DATABASE PREPARATION FLOWCHART



APPENDIX E: COR ROUTE ADJUSTMENT FLOWCHART



APPENDIX F: SELECTED AREAS AND DISTRICTS

Area	District
Capital Metro	Baltimore
	Capital ¹⁸
	Greensboro
	Northern Virginia
Eastern	
Eastern	Appalachian
	Cincinnati
	Columbus
	Kentuckiana
	Northern Ohio
Great Lakes	
Great Lakes	Central Illinois
	Greater Indiana
	Greater Michigan
	Lakeland
	Northern Illinois
	Southeast Michigan
Northeast	
Northeast	Boston
	Connecticut
	Maine
	Massachusetts
	New Hampshire/Vermont
Southeast	
Southeast	Alabama
	Atlanta
	Central Florida
	Mississippi
	North Florida
	South Florida
	Suncoast
	Tennessee
Western	
Western	Arizona
	Colorado/Wyoming
	Nevada/Sierra
	Salt Lake City

¹⁸ The Capital District was unable to provide credible supporting documentation to determine effective implementation of the COR system to perform route adjustments.

APPENDIX G: MANAGEMENT'S COMMENTS