

## Information Technology Strategy & Roadmap

5 Year ITSP Implementation Roadmap:  
Cost / Benefit Analysis

January 27, 2016



## ThirdWave

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**ThirdWave Corporation**  
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11400 W. Olympic Blvd. Suite 200  
Los Angeles, CA 90064  
[www.ThirdWaveCorp.com](http://www.ThirdWaveCorp.com)  
310.914.0186



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## Section 1

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# Executive Summary

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### 1.1 Investing in the Next Phase of the City's Evolution

This document provides the Cost/Benefit Analysis (CBA) for the City of Centennial's five-year ITSP Implementation Roadmap.

The basis for this CBA is the voluminous amount of data provided by City staff in various tasks of the ITSP project. The CBA identifies substantial quantifiable opportunities for adopting the ITSP including the following:

- Economies of scale in IT investments;
- Reduced software maintenance costs;
- Workflow automation resulting in staff time savings (and the public although not calculated in this analysis);
- Near paperless processes, reducing the cost of producing, copying, moving and storing paper documents;
- Deferred expenses, including future staff;
- Reduced operating costs;
- Staff costs through considerable efficiency gains; and
- Increased revenues.



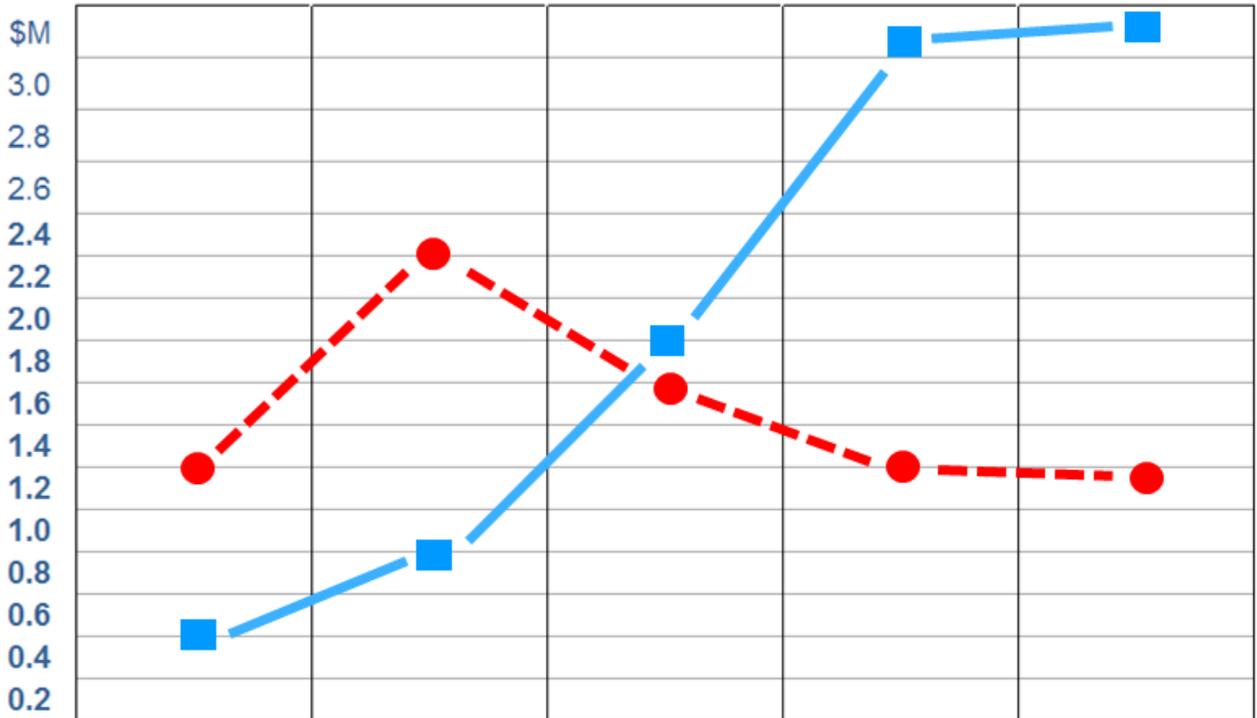
The figure on the following page illustrates the estimated potential benefits of the ITSP, illustrating a compelling business case for approving, adopting and funding the City's ITSP Roadmap. However, a couple of points should be noted:

1. The actual potential benefits could be substantially higher than what was calculated in this analysis. For instance, only 26 mission critical business processes were assessed in the project, an average of 2 processes per department. It is safe to say that most departments

do more than two things, and therefore, many potential areas for improvement were not addressed in the ITSP project.

2. There were many potential cost saving opportunities in the Rapid Workflow® workshops where specific cost metrics were not identified (about 50% of the total number that were calculated); therefore they were not calculated in this analysis.

**Figure 1.1.1: City of Centennial ITSP 5-Year Cost/Benefit Analysis**



	Year 1	Year 2	Year 3	Year 4	Year 5
Est. Costs	1,221,310	2,262,794	1,630,432	1,243,463	1,215,963
Est. Benefits	404,257	850,020	1,854,178	3,004,391	3,015,745

While the CBA indicates that there is a substantial justification for funding the ITSP, budgeting for the ITSP should be seen as a much needed strategic investment to support the City’s vision and growth. Investing in the ITSP will facilitate the next phase of the City’s evolution to Centennial 2.0, where Information Technology becomes a cornerstone of how the City provides exceptional services and operates in the most cost effective manner possible. Investing in the ITSP will foster the next leap forward, providing the required technology infrastructure to continue the innovative and entrepreneurial path envisioned 15 years ago when the City was incorporated.

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## Section 2

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# Enterprise Cost/Benefit Analysis Methodology

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### 2.1 Methodology

Developing the Centennial ITSP Roadmap Cost/Benefit Analysis (CBA) employed a rigorous data driven method to identify and calculate estimated ITSP initiative costs and potential quantifiable benefits.

This was the final activity in ThirdWave's patented Rapid Workflow® Enterprise Architecture methodology that identifies business, functional and technical requirements, solutions, costs and cost/benefits.

#### 2.1.1 Steps to Calculating the CBA

The following provides a brief overview of the CBA methodology used to develop the cost/benefit model and arrive at the findings in this document.

**Step 1: Review all project artifacts and data gathered to identify general opportunities:**

- Management Interviews
- Online Staff Survey
- Focus Groups with the IT Department
- Rapid Workflow Process Models



**Step 2: Identify quantifiable impacts in the Rapid Workflow® process models:**

Reviewed all process models and copied the problems and impacts statements where City staff identified quantifiable impacts to a problem statement. A total of ninety-eight such opportunities were identified and included in the CBA Model.

**Step 3: Set up cost/benefit scenarios for each quantifiable item:**

Cost/benefit scenarios include the existing inefficiencies in a combination of some or all of the following: staff involved in the activity, their titles, fully burdened staff salaries, items process, time spent per item, etc.

**Step 4: Apply an efficiency factor:**

The efficiency factor is the potential savings, calculated as a percentage, if the proposed ITSP initiative were to be implemented. Most business process had several potential quantifiable benefits, resulting in hundreds of cost saving equations. In some cases, if an existing inefficiency is completely eliminated by an ITSP initiative, the efficiency factor applied was 100% as the work would be completely eliminated. In some cases where no specific dollar saving could be identified the Efficiency Factor was 0%.

**Step 5: Summarize potential savings by Rapid Workflow® Business Process Model:**

Potential cost savings for quantifiable items were totaled for each process by month, year and over 5 years.

**Step 6: Sort potential cost saving per the ITSP initiatives prioritization scheme:**

Business process benefits were sorted per the ITSP implementation timeline developed in the Implementation Roadmap task. The potential benefit dollars were added to the ITSP investment model to produce the final cost/benefit model.

### 2.1.2 Cost Calculations

Cost calculations were produced to identify the Total Cost of Ownership for implementing the 5-Year ITSP Roadmap. Budget estimates were developed drawing upon industry data, research conversations with vendors, cost data provided by the City, and ThirdWave's previous experience with systems implementations, and our 29 years of executing other IT Strategic Plans for the public sector.

Costs were articulated for the following:

- Hardware Costs: including quantities, where known.
- Software Costs: including initial one-time costs and ongoing software maintenance costs.
- Professional Services: including consulting, Commercial-Off-the-Shelf system implementations, development, and/or systems integration.

Based on the 5-Year prioritization of ITSP initiatives developed in collaboration with the City's Project Team, costs were calculated and allocated for each year of the 5-year plan. Where maintenance costs were applicable they were added to subsequent years.

### 2.1.3 Benefit Calculations

Benefit calculations were produced to identify estimated potential cost savings in implementing the 5-Year ITSP Roadmap. Benefits estimates were developed primarily from data provided by City staff in Benefits Statements in the Rapid Workflow® workshops, drawing upon industry data, ThirdWave's previous experience with systems implementations, and our 29 years of executing other IT Strategic Plans for the public sector.

Benefits were articulated for the following:

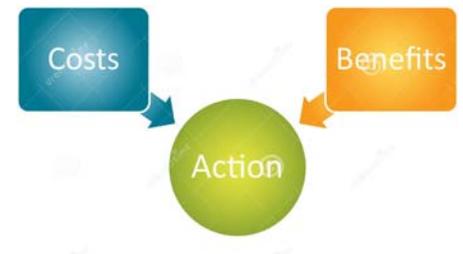
- Staff time savings
- Reduced operational expenses
- Increased revenues

Based on the 5-Year prioritization of ITSP initiatives developed in collaboration with the City's Project Team, benefits were calculated and allocated for each year of the 5-year plan. Where costs savings were ongoing they were added to subsequent years.

## 2.2 Cost/Benefit Calculation Summaries

The figures on the following page illustrate the CBA benefit summaries for each of the mission critical Rapid Workflow® workshops. (Costs were calculated in the previous deliverable, the ITSP Implementation Plan.) Potential benefit calculations are provided in the following manner:

- By mission critical business process;
- Sorted by mission critical business process with the highest potential benefits, in descending order;
- Group per the ITSP implementation roadmap timeline calculated by month, year and over 5 years.



### 2.2.1 Assumptions

A number of assumptions were made in developing the CBA and are listed below.

1. Cost savings used conservative numbers in every instance.
2. In cases where a significant impact was identified by staff but no specific time was noted, a very small time estimate, i.e., 5 to 15 minutes, in order to capture the impact and potential benefit.
2. Average fully burdened hourly rates provided by the City were used for staff efficiency savings calculations.
3. General quantitative saving opportunities where no specific data was provided, i.e., staff time, number of staff, number of events, or time spent, were not calculated or used in the CBA.

**Figure 2.2.1: Potentials Benefits Calculations by Mission Critical Business Process**

RWPM	Business Process	Monthly	Year	5 Year
Session 1	Facilities Management Process	14,514	174,165	870,825
Session 2	Agenda Management Process	6,842	82,099	410,497
Session 3	GIS (Enterprise) Process	32,719	392,630	1,963,152
Session 4	Finance Budget Process	9,850	118,203	591,015
Session 5	Accounts Receivables Process	6,940	83,277	416,383
Session 6	Accounts Payable Process	3,387	40,642	203,209
Session 7	Contract Routing Process	915	10,976	54,879
Session 8	Credit Card Processing (Enterprise) Process	1,796	21,555	107,773
Session 9	Operations Management- St Maintenance Process	12,830	153,962	769,810
Session 10	Liquor License Process	328	3,931	19,655
Session 11	Building Permitting Process	25,398	304,779	1,523,897
Session 12	Enterprise Content Management System	19,140	229,680	1,148,400
Session 13	HR – Onboarding Termination Process	1,010	12,121	60,603
Session 14	Code Compliance Process	25,433	305,198	1,525,988
Session 15	Enterprise Regional GIS	0	0	0
Session 16	Comm. Development - Land Dev. Apps. Process	39,180	470,165	2,350,826
Session 17	PW - Traffic Systems Process	6,894	82,733	413,664
Session 18	Asset Management (Enterprise) Process	4,200	50,400	252,000
Session 19	Public Records Requests Process	\$2,214	\$26,569	\$132,843
Session 20	Key Performance Measures Process	\$1,892	\$22,708	\$113,542
Session 21	Payroll Process	\$1,030	\$12,364	\$61,818
Session 22	Inventory Process	\$327	\$3,930	\$19,649
Session 23	Citizen and Council Request Process	0	0	0
Session 24	ROW Permitting Process	9,761	117,137	585,684
Session 25	Procurement (Enterprise) Process	\$675	\$8,100	\$40,500
<b>TOTAL</b>		<b>227,277</b>	<b>2,727,323</b>	<b>13,636,613</b>

The figure on the next page illustrates the CBA benefit summaries for each of the Rapid Workflow® workshops, sorted by the most significant potential savings in descending order.

This figure clearly illustrates the range of potential benefits zero to millions over 5 years.

**Figure 2.2.2: Sorted Potentials Benefits Calculations**

RWPM	Business Process	Monthly	Year	5 Year
Session 16	Comm. Development - Land Dev. Apps. Process	39,180	470,165	2,350,826
Session 3	GIS (Enterprise) Process	32,719	392,630	1,963,152
Session 14	Code Compliance Process	25,433	305,198	1,525,988
Session 11	Building Permitting Process	25,398	304,779	1,523,897
Session 12	Enterprise Content Management System	19,140	229,680	1,148,400
Session 1	Facilities Management Process	14,514	174,165	870,825
Session 9	Operations Management- St Maintenance Process	12,830	153,962	769,810
Session 4	Finance Budget Process	9,850	118,203	591,015
Session 24	ROW Permitting Process	9,761	117,137	585,684
Session 5	Accounts Receivables Process	6,940	83,277	416,383
Session 17	PW - Traffic Systems Process	6,894	82,733	413,664
Session 2	Agenda Management Process	6,842	82,099	410,497
Session 18	Asset Management (Enterprise) Process	4,200	50,400	252,000
Session 6	Accounts Payable Process	3,387	40,642	203,209
Session 19	Public Records Requests Process	2,214	26,569	132,843
Session 20	Key Performance Measures Process	1,892	22,708	113,542
Session 8	Credit Card Processing (Enterprise) Process	1,796	21,555	107,773
Session 21	Payroll Process	1,030	12,364	61,818
Session 13	HR – Onboarding Termination Process	1,010	12,121	60,603
Session 7	Contract Routing Process	915	10,976	54,879
Session 25	Procurement (Enterprise) Process	675	8,100	40,500
Session 10	Liquor License Process	328	3,931	19,655
Session 22	Inventory Process	327	3,930	19,649
Session 15	Enterprise Regional GIS	0	0	0
Session 23	Citizen and Council Request Process	0	0	0

**227,277      2,727,323      13,636,613**

The following figure illustrates the CBA for the mission critical Rapid Workflow® workshops grouped by year based on the prioritization scheme developed in the ITSP implementation roadmap task. This data was ultimately used in the final Cost/Benefit Analysis Model.

It bears noting that there is not a one to one relationship of the items listed in the following figure and the ITSP implementation timeline. The table CBA Model is based on quantitative benefits in business processes and the ITSP Implementation Roadmap of Information technology initiatives.

**Figure 2.2.3: ITSP CBA Data By Year**

RWPM	Business Process	Monthly	Year	5 Year
<b>Year 1</b>				
Session 16	Comm. Development - Land Dev. Apps. Process	39,180	470,165	2,350,826
Session 2	Agenda Management Process	6,842	82,099	410,497
Session 19	Public Records Requests Process	2,214	26,569	132,843
Session 12	Enterprise Content Management System	9,570	114,840	574,200
<b>Year 2</b>				
Session 3	GIS (Enterprise) Process	32,719	392,630	1,963,152
Session 4	Finance Budget Process	9,850	118,203	591,015
Session 5	Accounts Receivables Process	6,940	83,277	416,383
Session 8	Credit Card Processing (Enterprise) Process	1,796	21,555	107,773
Session 6	Accounts Payable Process	3,387	40,642	203,209
Session 12	Enterprise Content Management System	9,570	114,840	574,200
Session 13	HR – Onboarding Termination Process	1,010	12,121	60,603
Session 7	Contract Routing Process	915	10,976	54,879
Session 25	Procurement (Enterprise) Process	675	8,100	40,500
<b>Year 3</b>				
Session 14	Code Compliance Process	25,433	305,198	1,525,988
Session 11	Building Permitting Process	25,398	304,779	1,523,897
Session 1	Facilities Management Process	14,514	174,165	870,825
Session 9	Operations Management- St Maintenance Process	12,830	153,962	769,810
Session 24	ROW Permitting Process	9,761	117,137	585,684
Session 17	PW - Traffic Systems Process	6,894	82,733	413,664
Session 18	Asset Management (Enterprise) Process	4,200	50,400	252,000
<b>Year 4</b>				
Session 20	Key Performance Measures Process	1,892	22,708	113,542
<b>Year 5</b>				
Session 21	Payroll Process	1,030	12,364	61,818
Session 10	Liquor License Process	328	3,931	19,655
Session 22	Inventory Process	327	3,930	19,649
Session 15	Enterprise Regional GIS	0	0	0
Session 23	Citizen and Council Request Process	0	0	0

**TOTALS**                      **227,277**                      **2,727,323**                      **13,636,613**