Business Justification for GIS Projects/Programs

City and County of Denver

Doug Genzer
GIS Data Administrator - Technology Services
Business Justification for GIS Projects/Programs

• **Budgets are tight**
• **How do you get GIS projects and initiatives approved and keep existing programs going?**
• **Business value, metrics, highlighting accomplishments**
CCD GIS Program

- 800 GIS Layers
- 43 Agencies
- Internal GIS viewer for all City employees
- 540 Arc GIS Online Named Users
- 300 ArcGIS Desktop users
- 90 ArcGIS Pro users
- 14 enterprise application integrations
- Esri - Enterprise License Agreement
Business Justification for GIS

• Align request with strategic goals

• What C-level management wants
  • Innovation
  • Increased efficiency
  • Return on investment
DRAPP 2014 Justification

Applications of Products from DRCOG’s Denver Regional Aerial Photography Project

The Request made to User Agencies:

BMO has asked staff to document some real-life examples of how DRAPP products are and would be used by CCD Agencies and Departments. What I need from each agency or division is a short write-up – 2 or 3 paragraphs at most – that is succinct and focused in answering the following questions, as relevant to your applications:

• How do you currently use DRAPP products – 2010-3”, 2012-6”, 2004 2’ Contours, rooflines and edge-of-pavement.
• What is the business value to your agency of the proposed upgrades/updates: 2014-3” imagery, 1’ contours, and current rooflines/EOP? What will these allow you to do that the 2010/2012/2004 products do not support?

Benefits:

• 15 Agencies/Departments Responded
• 6 page document
• Helped to make DRAPP a consistent budget item
• Cost split between 4 Agencies
NearMap Justification 2019

- **Survey Monkey**
- **Quick to put together**
- **Information gathered quickly**
- **Minimal effort to display findings**

NearMap Agency Business Value Survey

Q1

How often do you use the NearMap 2018 Aerial Imagery?

- **Daily**
- **Weekly**
- **Monthly**
- **Every few months**
- **Once a year**

![Survey results graph]

Answered: 71  Skipped: 1
Storm Drainage Billing

Mapping Denver's Impervious Surfaces

The responsibility of the Wastewater Management Division Customer Service (WMD-CS) section is to bill property owners in the City and County of Denver for sanitary sewer use and storm drainage collection.

The storm drainage bill is calculated by mapping the impervious surfaces contained within a parcel to determine each property's total impervious surface area.

Revenue generated by the storm drainage billing effort is used directly to maintain, repair and enhance existing storm water infrastructure (pipes, inlets, outfalls, etc.).

Wastewater Customer Service
Storm Drainage Billing

• 4,853 inspections in 2017
• 2,318 performed without a field visit by using NearMap
• 48% less field visits/enhanced productivity
• Vehicle mileage savings approximately 25%
• New construction billed sooner
• Increased revenue using Nearmap: ~$60,000

Wastewater Customer Service
## Peak Innovation Form

**Innovation Name:** Initial Damage Assessment Process Improvement  
**Who’s Involved:** Technology Services GIS and Office of Emergency Management

### Problem – Why Change is Needed (1-2 Sentences)

When a flood, tornado, large fire, or other disaster hits Denver, The Office of Emergency Management needs to perform an Initial Damage Assessment survey of privately owned buildings and City owned infrastructure in order to apply for Federal Emergency Management Agency recovery funds. The current process is paper-based, inefficient, and has no way of tracking photos associated with each property.

<table>
<thead>
<tr>
<th>Qualitative (Feelings)</th>
<th>Current State (CS) Costs</th>
<th>Future State (FS) Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worried that in the event of a disaster OEM will be unable to collect damage assessment data in a timely manner to receive Federal $$</td>
<td>Ecstatic that data can be collected in a faster, more efficient process, and that no aggregation or paper to digital input needed!</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Money</th>
<th>2/survey</th>
<th>0/survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>$64,000 (2013 flood example)</td>
<td>$32,000 (2013 flood example)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Errors</th>
<th>Amount</th>
<th>Time</th>
<th>Yearly Cost (Annualized)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64 sites</td>
<td>Depends on the extent of damage</td>
<td>30 min./site - data collection (2 collectors x 15 min.) 10 min./site data input and aggregation</td>
<td>$64,000 (2013 flood example)</td>
</tr>
</tbody>
</table>

**Yearly Savings (CS Cost – FS Cost)**  
$32,000 or twice the number of sites could be surveyed in the same amount of time

**Yearly Savings to Customer (Value of Customers Time)**  
Depends on number and size of disaster(s)
## GIS Governance

<table>
<thead>
<tr>
<th>Name</th>
<th>Date modified</th>
<th>Type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGOL GovernanceV1.2_08272018.docx</td>
<td>1/30/2020 7:06 AM</td>
<td>Microsoft Word Doc...</td>
<td>1,318 KB</td>
</tr>
<tr>
<td>Analysis_in_Pro_toc.pdf</td>
<td>2/3/2020 9:29 AM</td>
<td>Chrome HTML Doc...</td>
<td>81 KB</td>
</tr>
<tr>
<td>Charter_GAC_GUC_2016.doc</td>
<td>1/30/2020 9:44 AM</td>
<td>DOC File</td>
<td>54 KB</td>
</tr>
<tr>
<td>CityCountyDenver_GIS_Standards.pdf</td>
<td>1/30/2020 7:01 AM</td>
<td>Chrome HTML Doc...</td>
<td>1,217 KB</td>
</tr>
<tr>
<td>Editing_in_Pro_toc.pdf</td>
<td>2/3/2020 9:28 AM</td>
<td>Chrome HTML Doc...</td>
<td>76 KB</td>
</tr>
<tr>
<td>EDMGISProductBacklogPrioritization.pdf</td>
<td>1/30/2020 9:46 AM</td>
<td>Chrome HTML Doc...</td>
<td>314 KB</td>
</tr>
<tr>
<td>GeoEvent Server - Portal Logical Architecture - T...</td>
<td>1/30/2020 2:01 PM</td>
<td>Chrome HTML Doc...</td>
<td>202 KB</td>
</tr>
<tr>
<td>GIS Infrastructure.pdf</td>
<td>1/30/2020 2:01 PM</td>
<td>Chrome HTML Doc...</td>
<td>359 KB</td>
</tr>
<tr>
<td>GIS Integrations.pdf</td>
<td>1/30/2020 2:01 PM</td>
<td>Chrome HTML Doc...</td>
<td>262 KB</td>
</tr>
<tr>
<td>GIS Server Admin.docx</td>
<td>1/30/2020 1:57 PM</td>
<td>Microsoft Word Doc...</td>
<td>25 KB</td>
</tr>
<tr>
<td>GIS_Servers.xlsx</td>
<td>1/30/2020 2:01 PM</td>
<td>XLSX File</td>
<td>20 KB</td>
</tr>
<tr>
<td>GIS_Servers_ServiceList.xlsx</td>
<td>1/30/2020 2:01 PM</td>
<td>XLSX File</td>
<td>18 KB</td>
</tr>
<tr>
<td>GIS_Work_Plan2019.xlsx</td>
<td>1/30/2020 2:43 PM</td>
<td>XLSX File</td>
<td>15 KB</td>
</tr>
<tr>
<td>GIS_Servers.pdf</td>
<td>1/30/2020 2:01 PM</td>
<td>Chrome HTML Doc...</td>
<td>448 KB</td>
</tr>
<tr>
<td>Obtain_BRM_Gis_Decision_MatrixV1_12122019......</td>
<td>1/30/2020 7:19 AM</td>
<td>Chrome HTML Doc...</td>
<td>89 KB</td>
</tr>
<tr>
<td>Presentation of Denver's GIS 01302020.ppt</td>
<td>1/30/2020 2:09 PM</td>
<td>Microsoft PowerPoint...</td>
<td>21,816 KB</td>
</tr>
<tr>
<td>Report a GIS Data Error 01282020.docx</td>
<td>1/30/2020 1:55 PM</td>
<td>Microsoft Word Doc...</td>
<td>1,718 KB</td>
</tr>
<tr>
<td>SDELayerListMasterExport01302020.xlsx</td>
<td>1/30/2020 2:17 PM</td>
<td>XLSX File</td>
<td>206 KB</td>
</tr>
<tr>
<td>Service Catalog Poster 2009 - (36x48) Portrait.pdf</td>
<td>1/30/2020 2:32 PM</td>
<td>Chrome HTML Doc...</td>
<td>80 KB</td>
</tr>
<tr>
<td>ServiceNowDisasterRecovery_KnowledgeBase.JPG</td>
<td>1/30/2020 2:13 PM</td>
<td>JPG File</td>
<td>328 KB</td>
</tr>
<tr>
<td>WebAppBuilder Governance Considerations.docx</td>
<td>7/1/2020 10:42 AM</td>
<td>Microsoft Word Doc...</td>
<td>14 KB</td>
</tr>
</tbody>
</table>
Map It Denver Utilization

Unique Users

Trends: Geocortex Applications

Users: 1936

- Sessions
- Users

Week:
- 6/29
- 7/6
- 7/13
- 7/20

Application Rationalization
# Map It Denver Utilization

<table>
<thead>
<tr>
<th>Username</th>
<th>Sessions</th>
<th>Map Requests</th>
<th>Average Requests Per Session</th>
<th>Average Session Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonzalez, Jose A. - DOTI Wastewater Video Inspector II (<a href="mailto:138448@gov.denver">138448@gov.denver</a>)</td>
<td>9</td>
<td>2,255.00</td>
<td>805</td>
<td>2h 25m</td>
</tr>
<tr>
<td>Morrisey, David B. - DOTI CE0431 Engineer Senior (<a href="mailto:137820@gov.denver">137820@gov.denver</a>)</td>
<td>6</td>
<td>1,758.00</td>
<td>773</td>
<td>4h 44m</td>
</tr>
<tr>
<td>Weller, Paul R. - DOTI CE0397 Engineer (<a href="mailto:211566@gov.denver">211566@gov.denver</a>)</td>
<td>7</td>
<td>1,619.00</td>
<td>1,128.00</td>
<td>6h 1m</td>
</tr>
<tr>
<td>Varoz, Jacob I. - DOTI Wastewater Systems Data Investigator (<a href="mailto:134358@gov.denver">134358@gov.denver</a>)</td>
<td>8</td>
<td>1,182.00</td>
<td>1,179.00</td>
<td>5h 51m</td>
</tr>
<tr>
<td>Stephens, Leslie A. - DOTI CC1503 Administrative Support Assist (<a href="mailto:205153@gov.denver">205153@gov.denver</a>)</td>
<td>16</td>
<td>1,057.00</td>
<td>1,277.00</td>
<td>3h 17m</td>
</tr>
<tr>
<td>Lutalo, Jennifer - DOTI CC1494 Administrative Support Assistant (<a href="mailto:209214@gov.denver">209214@gov.denver</a>)</td>
<td>8</td>
<td>921</td>
<td>1,318.00</td>
<td>4h 54m</td>
</tr>
<tr>
<td>Boeck, Brenda - DOTI CE3049 Plans Review Specialist II (<a href="mailto:BOECKBK@gov.denver">BOECKBK@gov.denver</a>)</td>
<td>11</td>
<td>845</td>
<td>1,248.00</td>
<td>4h 5m</td>
</tr>
<tr>
<td>Serrano, Ruben C. - DOTI CN2081 Underground Utility Investigator (<a href="mailto:138453@gov.denver">138453@gov.denver</a>)</td>
<td>12</td>
<td>768</td>
<td>1,139.00</td>
<td>5h 28m</td>
</tr>
<tr>
<td>McKee, Emily - DPR WW1111 Contingent Worker (<a href="mailto:502213@gov.denver">502213@gov.denver</a>)</td>
<td>4</td>
<td>752</td>
<td>802</td>
<td>3h 39m</td>
</tr>
<tr>
<td>Osmundsen, Eric J. - DOTI Engineer Manager (<a href="mailto:OSMUNEJ@gov.denver">OSMUNEJ@gov.denver</a>)</td>
<td>13</td>
<td>740</td>
<td>689</td>
<td>23m</td>
</tr>
</tbody>
</table>

**Application Rationalization**

- 4,853 inspections in 2017
- 2,318 performed without a field visit by using NearMap
- 48% less field visits/enhanced productivity
- Vehicle mileage savings approximately 25%
- New construction billed sooner
- Increased revenue using Nearmap: $38,200 - $57,300
### Feature Usage by Organization Table

<table>
<thead>
<tr>
<th>Feature</th>
<th>Year</th>
<th>Month</th>
<th>Org Node Name L2</th>
<th>Org Name L3</th>
<th>Org Node Name L4</th>
<th>User Name</th>
<th>Total Used Time (Hours)</th>
<th>First name</th>
<th>Last Name</th>
<th>Email</th>
<th>Phone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC/INFO</td>
<td>2018</td>
<td>July</td>
<td>CITY AND COUNTY OF DENVER</td>
<td>COMMUNITY PLANNING &amp; DEVELOPMENT</td>
<td>CPD PS CITYWIDE PLANNING</td>
<td>138150</td>
<td>1.57</td>
<td>Sara</td>
<td>White</td>
<td><a href="mailto:Sara.White@denvergov.org">Sara.White@denvergov.org</a></td>
<td>+1 (720) 692-024</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CPD PS COMPREHENSIVE PLANNING</td>
<td>NALLESCA</td>
<td>11.49</td>
<td>Steve</td>
<td>Nalley</td>
<td><a href="mailto:Steve.Nalley@denvergov.org">Steve.Nalley@denvergov.org</a></td>
<td>720-865-2921</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CPD PS NEIGHBORHOOD PLANNING</td>
<td>CHESTIX</td>
<td>4.18</td>
<td>Steven</td>
<td>Chester</td>
<td><a href="mailto:Steven.Chester@denvergov.org">Steven.Chester@denvergov.org</a></td>
<td>(720) 319-6642</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CPD PS SPECIAL PROJECTS &amp; MAPPING &amp; ANA</td>
<td>190110</td>
<td>10.81</td>
<td>Rachel</td>
<td>Cuccaro</td>
<td><a href="mailto:Rachel.Cuccaro@denvergov.org">Rachel.Cuccaro@denvergov.org</a></td>
<td>+1 (720) 865-0711</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MCGLEES</td>
<td>14.40</td>
<td>Eric</td>
<td>Mcelhany</td>
<td><a href="mailto:Eric.Mcelhany@denvergov.org">Eric.Mcelhany@denvergov.org</a></td>
<td>(720) 865-2916</td>
</tr>
<tr>
<td>DEPARTMENT OF ENVIRONMENTAL HEALTH</td>
<td></td>
<td></td>
<td></td>
<td>DEH EQM AWC AIR WATER &amp; CLIMATE</td>
<td>POLOMAP</td>
<td>1.12</td>
<td>1.12</td>
<td>Alan</td>
<td>Polonsky</td>
<td><a href="mailto:Alan.Polonsky@denvergov.org">Alan.Polonsky@denvergov.org</a></td>
<td>(720) 865-5480</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DEH EQM AWC SUSTAINABILITY</td>
<td>204472</td>
<td>3.12</td>
<td>3.12</td>
<td>Aubrey</td>
<td>Burgess</td>
<td><a href="mailto:Aubrey.Inner.Burgess@denvergov.org">Aubrey.Inner.Burgess@denvergov.org</a></td>
<td></td>
</tr>
</tbody>
</table>
Denver Open Data Catalog

2019 Open Data Page views: 344K
Cumulative Views 2019

Average Page Views: 942

Pageviews by Month for 2018 & 2019

Bounce Rate by Page (Single Page Visits)

Avg. Time spent in Seconds - Top 10 OpenData Datasets

Pageviews by Page - Top 10 OpenData Datasets

2019 ODC Pageview Metrics by Dataset
ArcGIS Online - Utilization

Denver Open Data Catalog

<table>
<thead>
<tr>
<th>Title</th>
<th>Modified</th>
<th>Owner</th>
<th>View Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Boundary</td>
<td>Nov 21, 2019</td>
<td>geospatialIDE...</td>
<td>25.6K</td>
</tr>
<tr>
<td>Existing Denver Bicycle Facilities</td>
<td>Mar 3, 2020</td>
<td>geospatialIDE...</td>
<td>13.6K</td>
</tr>
<tr>
<td>Denver City Council Districts</td>
<td>Jan 21, 2020</td>
<td>geospatialIDE...</td>
<td>12.5K</td>
</tr>
<tr>
<td>Statistical Neighborhood</td>
<td>Jun 25, 2020</td>
<td>geospatialIDE...</td>
<td>10K</td>
</tr>
<tr>
<td>Business Improvement Districts</td>
<td>Jul 22, 2020</td>
<td>geospatialIDE...</td>
<td>8.5K</td>
</tr>
<tr>
<td>Metropolitan Districts</td>
<td>Jul 21, 2020</td>
<td>geospatialIDE...</td>
<td>8.5K</td>
</tr>
</tbody>
</table>
Highlighting Accomplishments

Dear Doug, Andrew, Spencer + the GIS team,

You guys are AWESOME! Just wanted to give you a huge shout out for the incredible job you did helping with the #WeAreOpenDenver website design. It looks so incredible and it is going to add so much value to our community. Thank you for your enthusiasm and willingness to grab this project and take it from concept to reality, and make it better than he could have imagined. So grateful for your partnership!

Amanda Sawyer
Councilwoman District 5

#WeAreOpenDenver - WebAppBuilder
Business Justification for GIS Projects/Programs Questions?