



# The CALM Before the Storm: Next Steps for CALMShare 2.0 at LAX

ESRI User Conference – San Diego, CA  
July 11, 2013

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# LAX Airport

- Gateway to LA: 65 million passengers per year (2012)





# Coming Soon: LAX 2.0 & 3.0



- \$12.0 Billion of Construction Improvements
  - CB 1: \$3.0 Billion
  - CB 2: \$4.0 Billion
  - CB 3: \$5.0 Billion
- Nation's largest modernization airport project
- Largest public works project in Los Angeles' history



## TBIT – Bradley West (2013)





## TBIT – Bradley West (2013)





# TBIT – Bradley West (2013)





# New "Front Door" (2013)



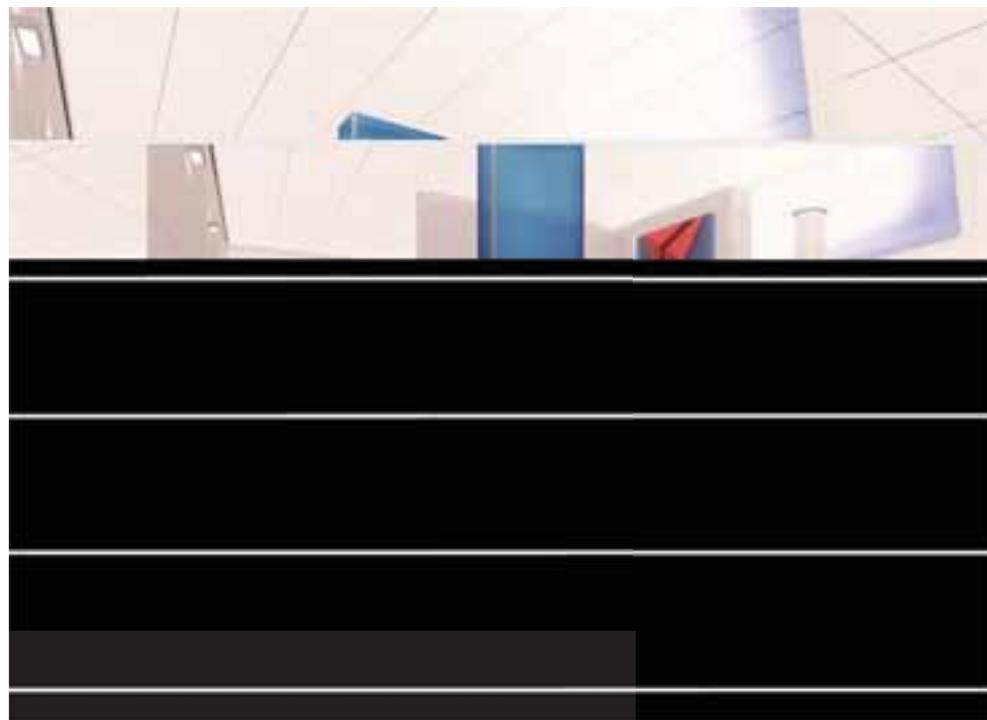


# New "Front Door" (2013)





# T5 - Delta (2014)





## Elevator and Escalators (2014 and beyond)





# Central Utility Plant (2014)



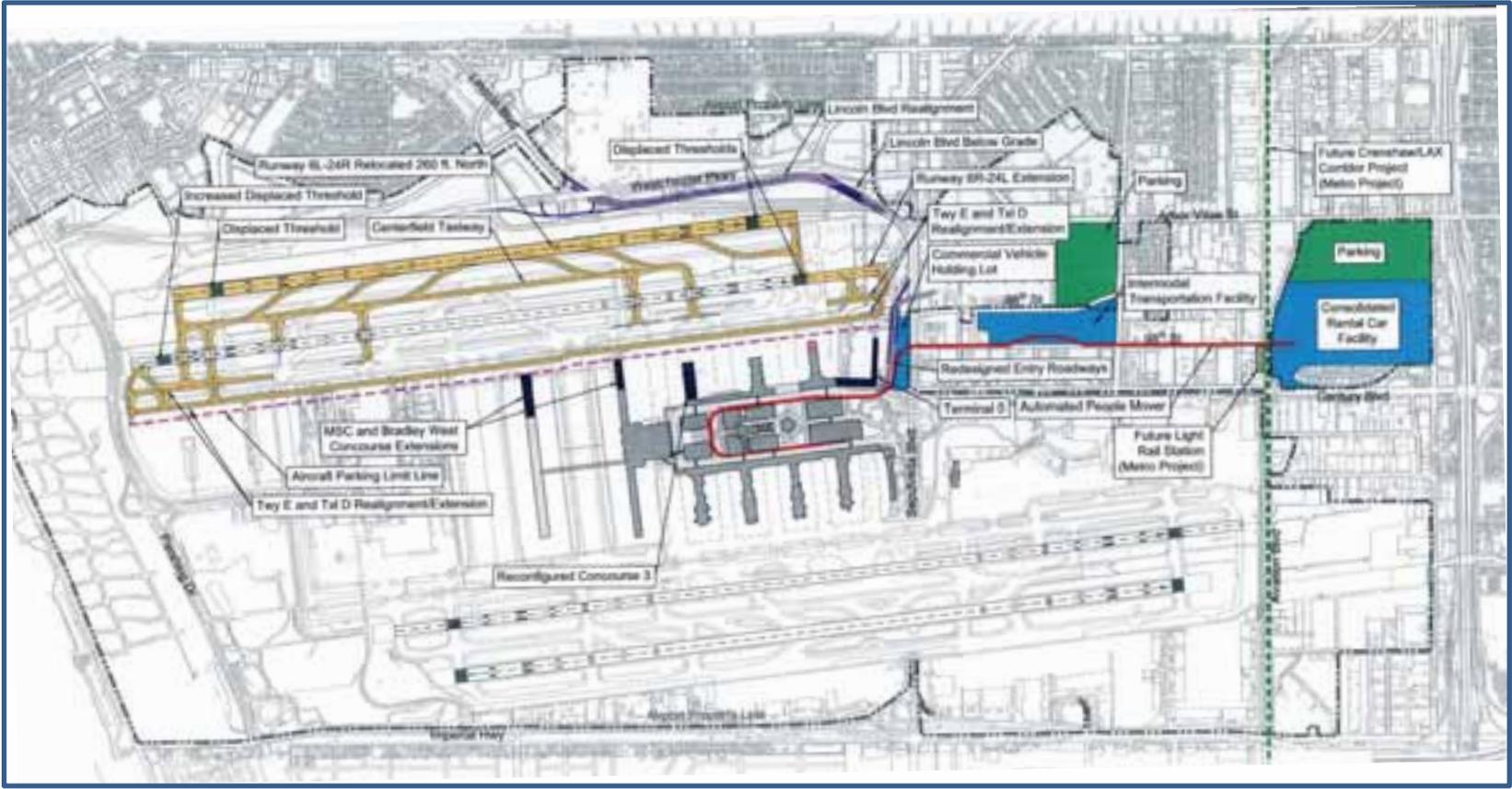


## T4 – Connector (2015)





# 2015 and Beyond





# CALM Team

Coordination And Logistics Management

Our Mission:

*Minimize construction-related impacts to passenger service and tenants.*



# CALM Team Deliverables

- Master Schedule (Monthly)
- Construction Bulletin (Weekly)
- *GIS Database (“Live”) – CALM Geodatabase*  
– *Accessed through SharePoint*



# CALM Data Management

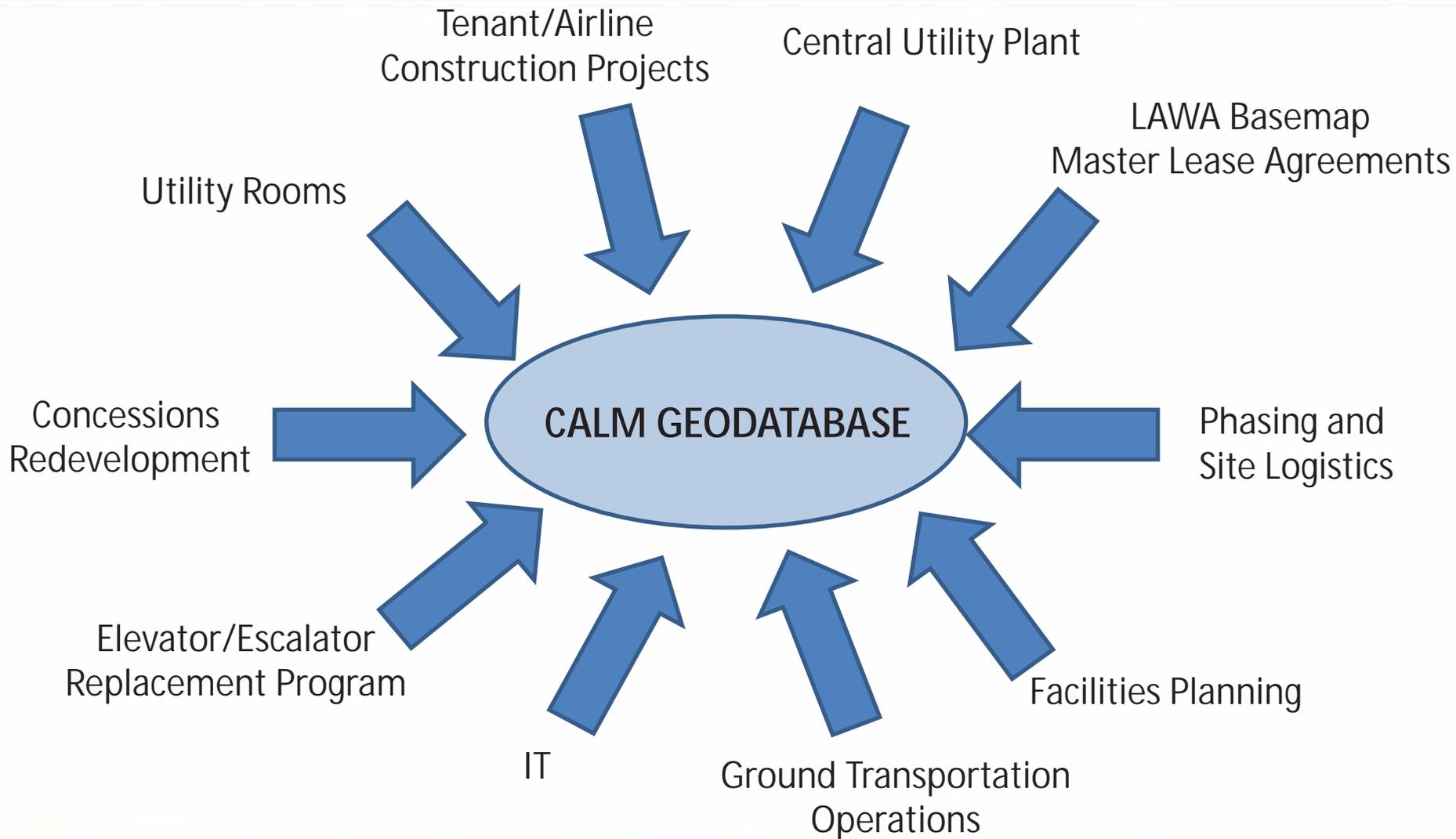
Projects in Pre-Development Stages (Planning)



Projects in Development Stages (In Design or In Construction)

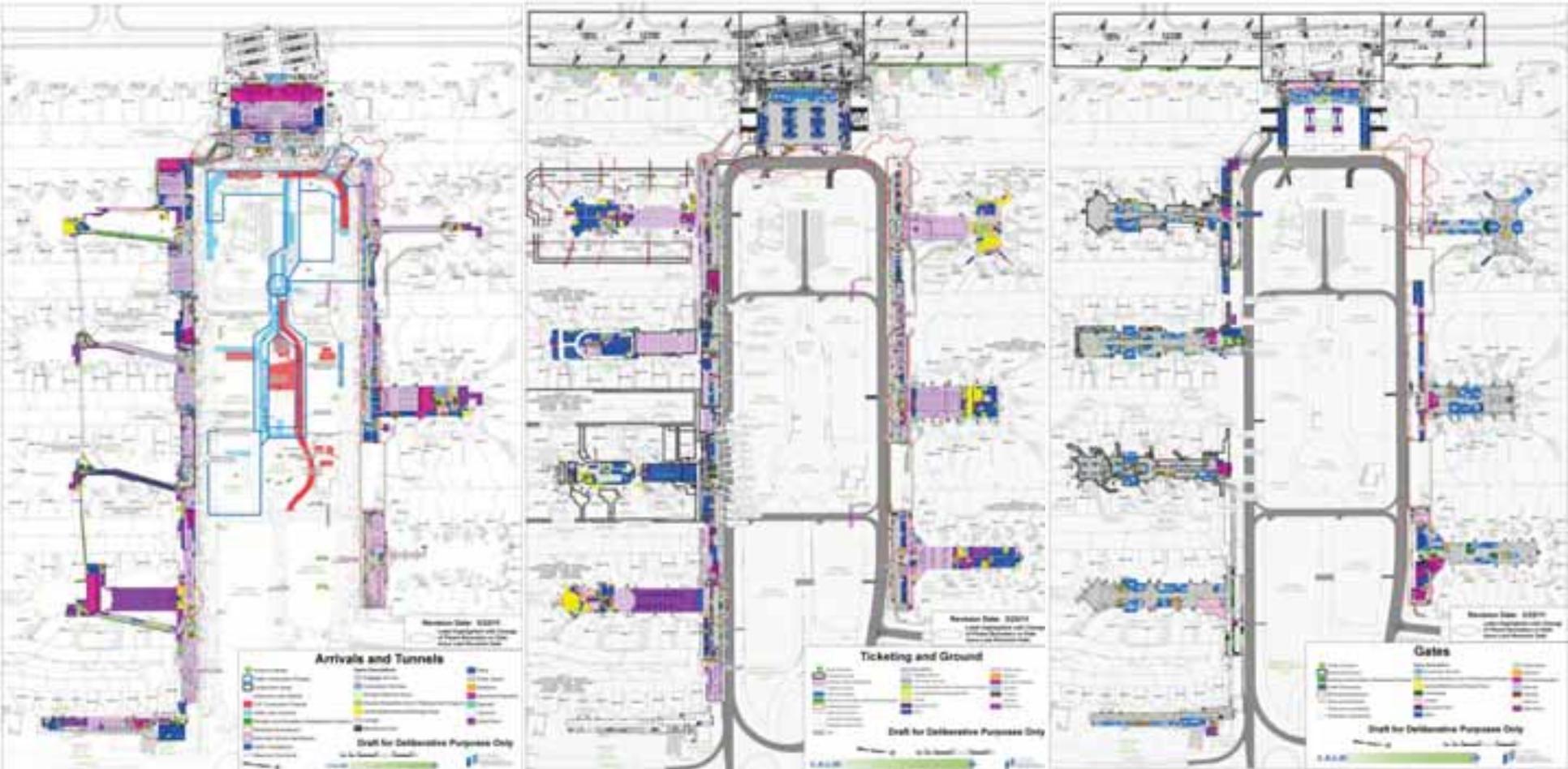


Completed Development Projects





# CALM Central Terminal Area Maps

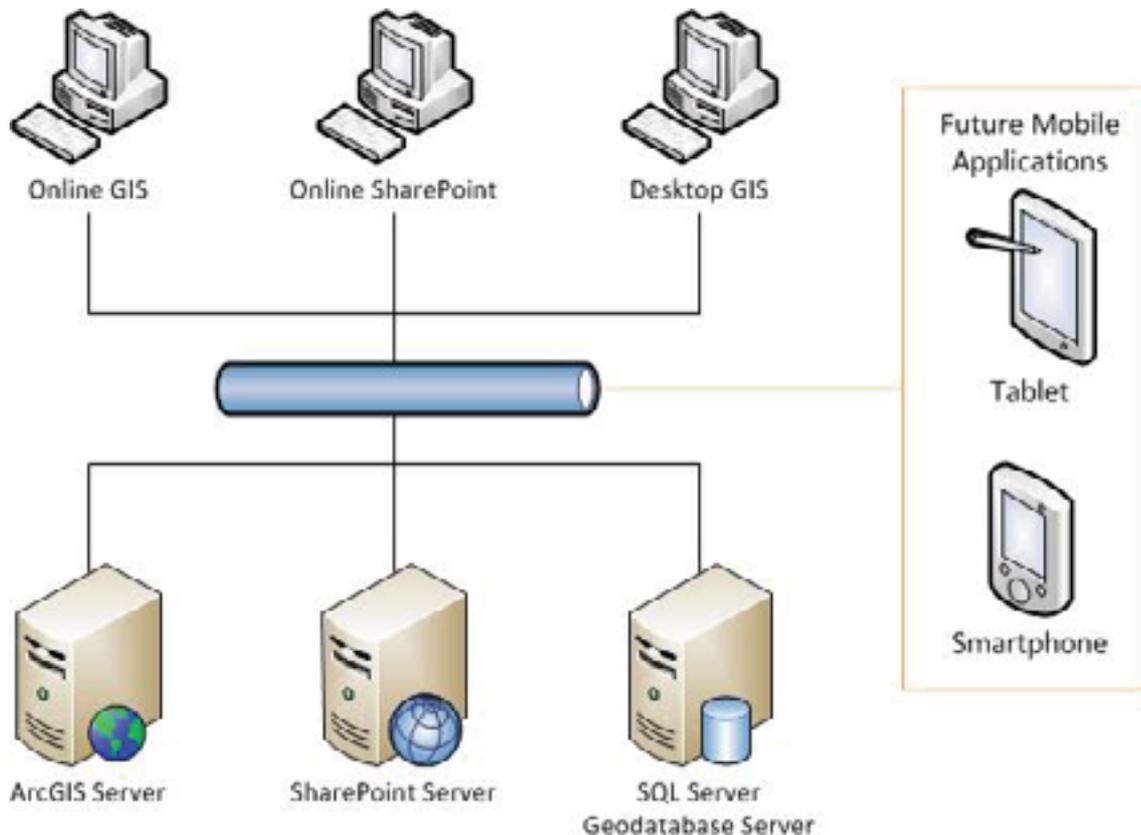




# CALM SharePoint GIS Setup

- Small Budget/Few Personnel
- Quick Turn-around – construction ongoing
- No time for “Needs Assessment”
- Access for LAWA employees only - through LAWA Share
  - Reason: sensitive location and cost information

# CALM SharePoint GIS Server Setup



- *ArcGIS Server 10*
- *SharePoint 2010*



# CALM SharePoint GIS Personnel/Costs

- Initial data collection and resolution (1 FTE – 5 months)
- Data Development schedule and GIS (2 FTE – 4 months)
- GIS System Development (2 FTE – 4 months)
- Hardware/Software Costs (\$78,000)
- On-Going/Future Costs (4 FTEs)



# CALM SharePoint GIS Homepage

CALMSHARE Home

Home Comments & Suggestions Search this site...

Lists

Libraries

ADG Drawing Management

Construction Bulletins

Training Materials

TEST\_XAP\_GIS\_HOOLA

Recycle Bin

All Site Content

## Welcome to LAWA ADG CALM SharePoint

The CALM (Coordination and Logistics Management) Team's mission statement is to minimize construction-related impacts to passenger service and tenants. This SharePoint site will enable LAWA staff to access all CALM deliverables. You will have the ability to customize LAJ - Central Terminal Area Construction Projects by plotting selected points of interest using our interactive map of the Central Terminal Area. Also, you will have the ability to customize your selections based upon a specific terminal or specific project area. You may also download all CALM deliverables in pdf format including CTA Maps, Master Schedules, and Construction Bulletins.

View Information

- Interactive Maps and Data [View Map](#)

View and Print Reports

- Frequently Used Reports (PDF)

Help:

- View Users Guide
- Email Administrator: [calmshare@lawa.org](mailto:calmshare@lawa.org)

About our deliverables: We hope that you find our CALM deliverables helpful and easy to use. Please note, however, that all CALM deliverables should be used for informational purposes only. If you do find an error or omission, please let us know; we try to provide the best product possible.

Important Note regarding Maps: The CTA Maps contain only construction projects which have a duration of over 2 weeks and construction costs of over \$100K.

**C.A.L.M.**  
Coordination and Logistics Management Team

**Los Angeles World Airports**  
AIRPORT DEVELOPMENT GROUP



# Maps by Location or Project

**Recently Modified**

- Home
- Interactive Maps
- ViewPrint\_Reports
- Other
- Delta

**LISTS**

- Libraries
- ADG Drawing Management
- Construction Bulletins

**Recycle Bin**

- All Site Content

### Maps by Location

- CTA
- Terminal 1
- Terminal 2
- Terminal 3
- Terminal 4
- Terminal 5
- Terminal 6
- Terminal 7
- Terminal 8
- TBIT

### Maps by Project

**LAWA:**

- CUP
- Elevators and Escalators

**Concessions:**

- Concessions T4,5,6,7,8
- TCH #1
- TCH #2

**Airlines:**

- Alaska
- Delta
- Other

**C.A.L.M.**  
Coordination and Logistics Management Team

**Los Angeles World Airports**  
AIRPORTS DEVELOPMENT GROUP



# Terminal Homepage

Recently Modified

- Home
- Interactive Maps
- ViewPrint\_Reports
- Other
- Delta

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Lists

Libraries

- ADG Drawing Management
- Construction Bulletins

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Recycle Bin

All Site Content

## Terminal 6

- 6.35 Million Annual Passengers
- 438,514 sq.ft.
- Major Airlines:
  - Allegiant Air
  - Continental
  - Copa
  - Frontier
  - Great Lakes
  - Spirit
  - United International



Interactive Map (Choose Terminal Level)

- Arrivals and Tunnels [View Map](#)
- Ticketing and Ground [View Map](#)
- Gates [View Map](#)





# Terminal 6 – Ticketing Level

Table of Contents Legend Filter By Date You are viewing: Terminal 6 Level: Ticketing Date Filter: No filter applied

- All Projects in Planning Stages
  - Planning Projects
- All Projects in Post-Planning Stages
  - LAWA Projects
    - Elevators and Escalators
    - IT Rooms
    - CUP Utility Rooms
    - CUP Outside Terminals
    - Terminal-wide Projects
  - Concessions
    - Terminals 4,5,7,8
    - TCH #1
    - TCH #2
    - Grease Interceptors
  - Airline Construction Projects
    - Alaska
    - Delta
    - Others
  - Other
    - Points of Interest
    - Space Descriptions
    - Ticketing Counters
    - Ground Transportation
    - Apron Logistics
    - Traffic Lane Closures

Elevators Escalators IT Rooms CUP Utility Rooms Alaska

Operator	Items	Construction Start Date	Construction End Date	Status	Terminal	Level	Square Feet	Col
Alaska	Apron Renovation at Satellite Extension	10/01/2010	01/20/2012	In Construction	6	Ticketing	5,040	Her
Alaska	TR 5	04/15/2011	12/21/2011	In Construction	6	Ticketing	208	Her
Alaska	Ramp Support Space	09/21/2010	01/30/2012	In Construction	6	Ticketing	38,422	Her
Alaska	Elec. Room 2802	03/28/2011	10/28/2011	Completed	6	Ticketing	391	Her
Alaska	TR 4	12/03/2010	01/26/2012	In Construction	6	Ticketing	268	Her
Alaska	TR 3	10/15/2010	02/10/2012	In Construction	6	Ticketing	299	Her
Alaska	BnS	06/29/2009	05/29/2012	In Construction	6	Ticketing	18,711	Her

Records: <<< < 0 > >>> Records (0 out of 19 Selected) Options...

# Tooltip Functionality

Table of Contents Legend Filter By Date

You are viewing: Terminal 6 Level: Ticketing Date Filter: No filter applied

All Projects in Planning Stages  
 Planning Projects  
 All Projects in Post-Planning Stages  
 LAWS Projects  
 Elevators and Escalators  
 IT Rooms  
 CUP Utility Rooms  
 CUP Outside Terminals  
 Terminal-wide Projects  
 Concessions  
 Terminals 4,5,7,8  
 TCM #1  
 TCM #2  
 Grease Interceptors  
 Airline Construction Projects  
 Alaska  
 Delta  
 Others  
 Other  
 Points of Interest  
 Space Descriptions  
 Ticketing Counters  
 Ground Transportation  
 Apron Logistics  
 Traffic Lane Closures

**Airline Construction Information**  
 Operator: Alaska  
 Name: Ramp Support Space  
 Construction Start Date: 09/21/2010  
 Construction End Date: 01/30/2012  
 Status: In Construction  
 Terminal: 6  
 Level: Ticketing  
 Square Feet: 38,422  
 Contractor: Hensel Phelps  
 Contractor's Emergency Phone Number: 3102154050  
 ADG PM: Matt Brown  
 BRM Name: Neil Malabuyoc  
 Inspector(s): Charles Headley/Jeff Kemper (nights)  
 Inspector Phone Number: 3108770795/4246446018  
 LAX Project Number: T-LAX-11012

Operator	Name	Constructi	Start Date	End Date	Status	Terminal	Level	Square Feet	Con
Alaska	Apron Renovation at Satellite Extension		10/01/2010						
Alaska	TR 6		04/13/2011	08/23/2011					
Alaska	Ramp Support Space		09/21/2010	01/30/2012	In Construction	6	Ticketing	38,422	Her
Alaska	Elec. Room 2802		03/28/2011	10/25/2011	Completed	6	Ticketing	391	Her
Alaska	TR 4		12/03/2010	01/26/2012	In Construction	6	Ticketing	266	Her
Alaska	TR 3		10/23/2010	02/10/2012	In Construction	6	Ticketing	299	Her
Alaska	BHS		04/29/2009	09/29/2012	In Construction	6	Ticketing	18,711	Her

Record: << < 0 > >> Records (0 out of 19 Selected) Options...



# Select Table-Highlight Map

Table of Contents Legend Filter By Date

You are viewing: Terminal 6 Level: Ticketing Date Filter: No filter applied

All Projects in Planning Stages  
 Planning Projects

All Projects in Post-Planning Stages

LAIMS Projects

- Elevators and Escalators
- IT Rooms
- CUP Utility Rooms
- CUP Outside Terminals
- Terminal-wide Projects

Concessions

- Terminals 4,5,7,8
- TCM #1
- TCM #2
- Grease Interceptors

Active Construction Projects

- Alaska
- Delta
- Others

Other

- Points of Interest
- Space Descriptions
- Ticketing Counters
- Ground Transportation
- Apron Logistics
- Traffic Lane Closures

30m  
200ft

esri

Operator	Name	Construction Start Date	Construction End Date	Status	Terminal	Level	Square Feet	Con
Alaska	Apron Renovation at Satellite Extension	10/01/2010	01/30/2012	In Construction	6	Ticketing	3,040	Her
Alaska	TR 6	04/15/2011	12/21/2011	In Construction	6	Ticketing	308	Her
Alaska	Ramp Support Space	09/31/2010	01/30/2012	In Construction	6	Ticketing	38,422	Her
Alaska	Elec. Room 2802	03/28/2011	10/25/2011	Completed	6	Ticketing	391	Her
Alaska	TR 4	12/03/2010	01/26/2012	In Construction	6	Ticketing	268	Her
Alaska	TR 3	10/25/2010	02/10/2012	In Construction	6	Ticketing	299	Her
Alaska	BHS	04/29/2009	05/29/2012	In Construction	6	Ticketing	18,711	Her

Record: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 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2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456



# Central Terminal Area – Gates Level

Table of Contents Legend Filter By Data You are viewing: CTA Level: Gates Date Filter: No filter applied

- All Projects in Planning Stages
  - Planning Projects
- All Projects in Post-Planning Stages
  - LAWA Projects
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Planning Elevators Escalators IT Rooms CUP Utility Rooms Public Concession T4,5,7,8 Alaska Delta Others

Name	Location	Intersects Arrivals	Intersects Ticketing	Intersects Gates	Construction Start D
Terminal 1.3	Between Terminal 1 and 2	x	x	x	05/01/2013
Terminal 2.5	Between Terminal 2 and 3	x	x	x	
T3-T8T Connector Bridge	Between Terminal 3 and T8T	x	x	x	
T4-T8T Connector (Bridge/Busgate/Inline BHS)	Between Terminal 4 and T8T	x	x	x	01/25/2014
Loading Dock	Between Terminal 3 and T8T	x	x	x	07/01/2013
North Terminal Complex - T3	Terminal 3	x	x	x	
North Terminal Complex - T2	Terminal 2	x	x	x	

Record: << < > >> Records (8 out of 8 Selected) Options... Control



# Filtering Functionality

**You are viewing:** Terminal 6 Levels Gates **Date Filter:** Filtered by Start Date = 04/01/2012 and End Date = 04/01/2013

**1**

**2**

Name	Future Name	Construction Start Date	Construction End Date	Status	Project Type	Terminal	Level	Type	Subtype	Tenant	Square Feet	Contract
Starbucks		03/01/2013	12/01/2013	Projected	TCH 1	6	Gates	Food and Beverage	Coffee			
Redondo Beach Brewing Company		03/01/2013	12/01/2013	Projected	TCH 2	6	Gates	Food and Beverage	Casual Dining			
Jetway Concessions		03/01/2013	12/01/2013	Projected	TCH 2	6	Gates	Retail	Specialty Retail			
Hubbton News		03/01/2013	12/01/2013	Projected	TCH 1	6	Gates	Retail	Specialty Retail			
Wendy's Deli		03/01/2013	12/01/2013	Projected	TCH 1	6	Gates	Food and Beverage	Specialty Retail			
Ruby's Diner		03/01/2013	12/01/2013	Projected	TCH 1	6	Gates	Food and Beverage	Casual Dining			
Home Turf Sports Bar		03/01/2013	12/01/2013	Projected	TCH 1	6	Gates	Food and Beverage	Sports Bar			

Record: << < > >> Records (9 out of 9 Selected) | Options...

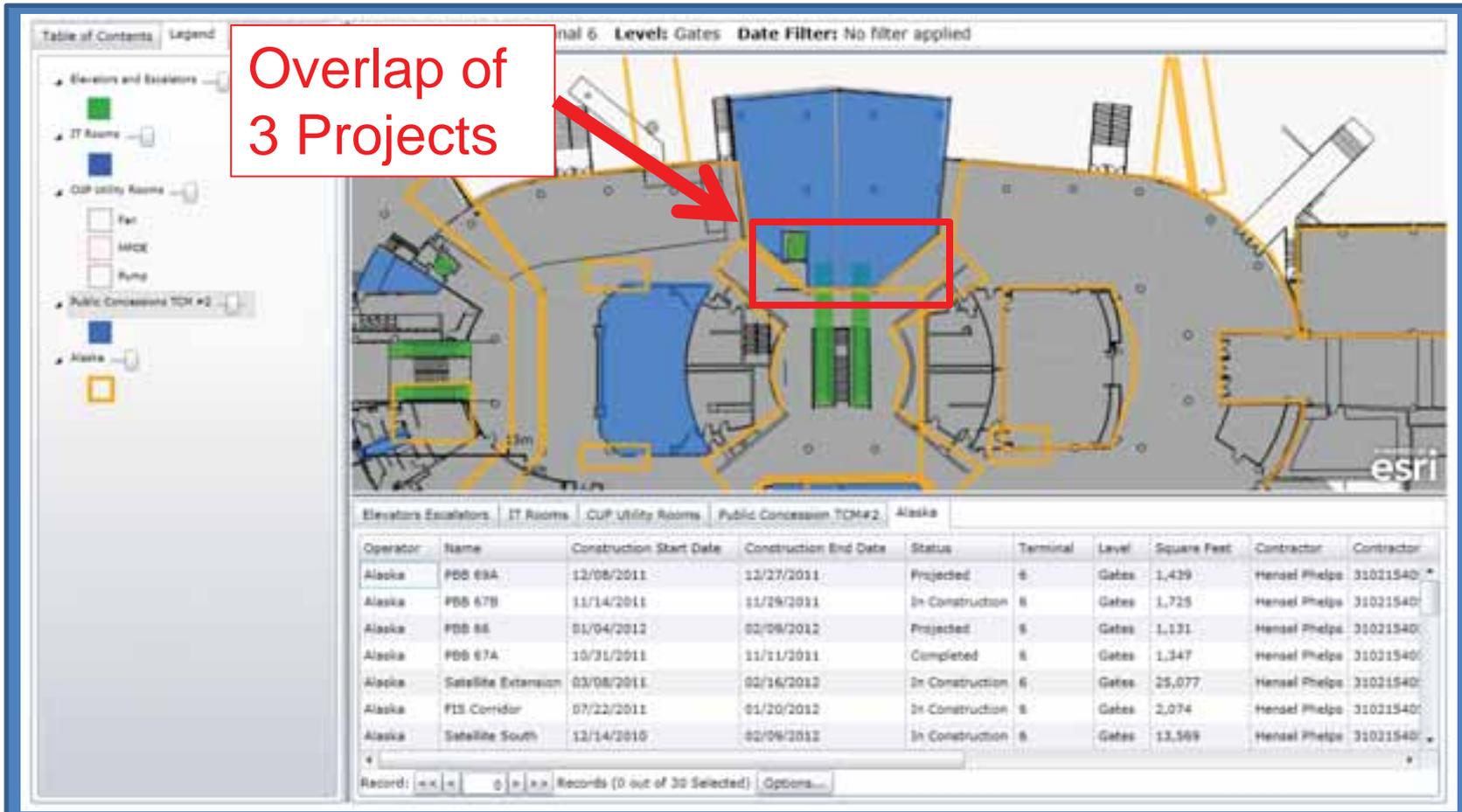
# Space/Time Conflicts

The screenshot displays a software interface for managing construction projects. On the left is a sidebar with a 'Table of Contents' and a 'Filter By Data' section. The main area shows a floor plan of Terminal 1, Level: Ticketing, with a red arrow pointing to a cyan-colored area representing an IT room. A red box highlights the text 'Overlap of IT Room (MPOE) and Tenant Construction Projects'. Below the floor plan is a table with columns for Operator, Name, Construction Start Date, Construction End Date, Status, Terminal, Level, Square Feet, and Control.

Operator	Name	Construction Start Date	Construction End Date	Status	Terminal	Level	Square Feet	Control
Southwest	Air/Tran Relocation to Terminal 1			Projected	1	Ticketing	1,619	
Southwest	Air/Tran Relocation to Terminal 1			Projected	1	Ticketing	4,258	
Southwest	Southwest Airlines Operations Improvements	02/01/2012	08/31/2012	On hold	1	Ticketing	17,416	



# Space/Time Conflicts

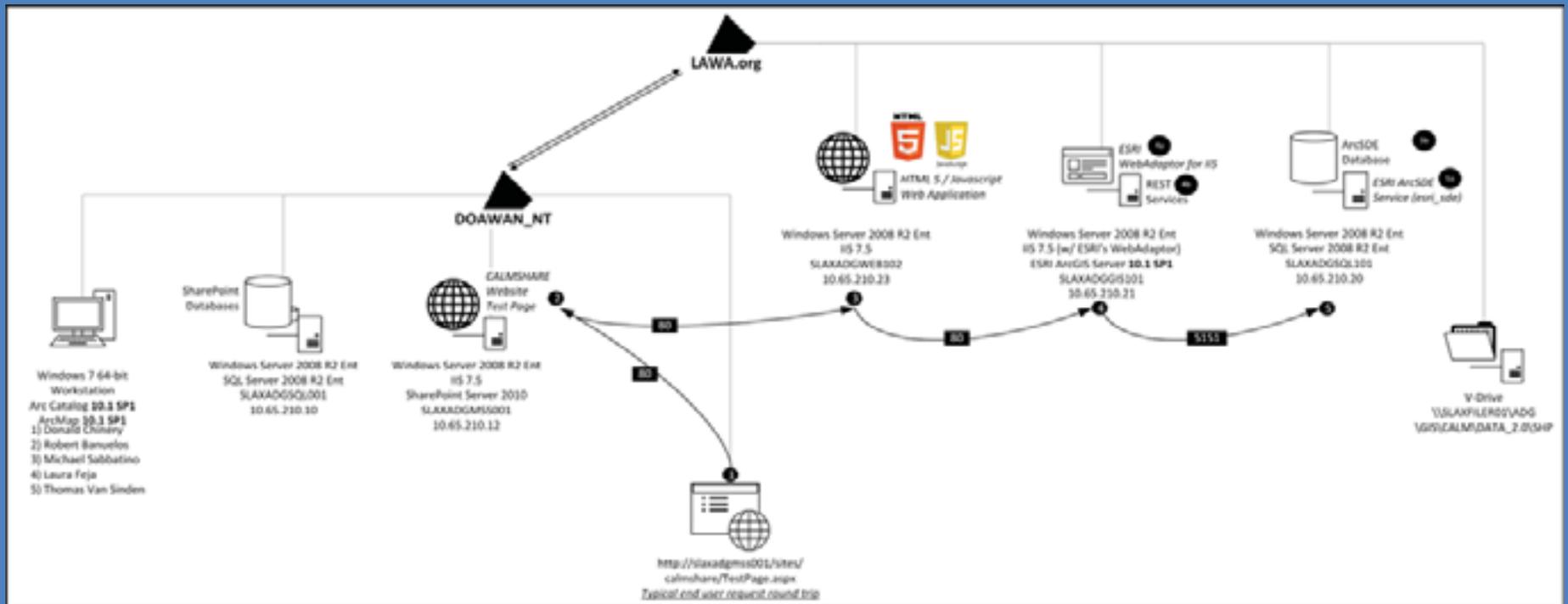




# CALMShare 2.0 Steps

1. Development Hardware/Software
2. ESRI Data Clean Up
3. P6 Data Integration
4. Software Development
5. System Upgrade

# Server Upgrades





# Data Standardization

Two different tables  
Two different ways to identify Terminal 4

Operator	Name	Construction Start Date	Construction End Date	Status	Terminal	Level	Square Feet	Contractor	Contractor's Emrg
United	T2 Atrium Changing Exhibition	04/15/2013	04/26/2013	In Design	0	Landside	1,870		0
United	United Airlines - Shop Area-Roof Repair	03/26/2013	05/26/2013	In Construction	0	Airside	235,092		0
Metropolitan Transportation Authority	MTA - Crosshew LAX Transit Corridor	04/08/2012	05/08/2013	In Construction	0	Airside	948,077		0
Verizon	Verizon Wireless - Parking Structures (P1, P2, P3)	11/28/2012	05/18/2013	In Construction	0	Landside	4,830		0
Auth. Taxi cab Supervision	Auth. Taxi cab Supervision - LAX ATIS Holding Lot Exit Project	04/01/2013	04/30/2013	In Construction	0	Landside	239,964		0
PeDix	Federal Express - Electric, Gas and Water Metering Project	12/01/2012	05/01/2013	In Construction	0	Landside	4,882		0
American	AA/AM Commuter Terminal Phase 3 (T-LAX-13328)	08/08/2012	05/06/2013	In Construction	0	Landside	18,222	StanPac/CSA	8428020432
LAAK	Taxilane T - Phase 1	05/01/2013	05/14/2013	In Design	0	Airside	259,434		0
LAAK	West Maintenance Area	11/09/2013	11/23/2015	In Design	0	Airside	3,320,134		0
LAAK	Taxilane T - Phase 2	01/04/2016	11/18/2017	In Design	0	Airside	260,783		0
LAAK	Admin West North Parking Lot (A-2)	01/01/2012	12/30/2013	In Construction	0	Airside	198,099		0





# Future Development Language

- CALM chose HTML 5 – fit with SharePoint 2013
- Development done in MS Visual Studio 2013
- Project Management in Axosoft OnTime 11 Web edition

The screenshot shows the Axosoft OnTime 11 Web edition interface. The main window displays a table of project tasks. The table has columns for 'Task Name', 'Status', 'Assigned To', 'Estimated Start', and 'Actual End'. The tasks listed are:

Task Name	Status	Assigned To	Estimated Start	Actual End
00 - Launch Test Bar - Tab 1 - Table of Contents	Feature Completed	Robert Desrosiers	0	10/14/2011
00 - Launch Test Bar - Tab 2 - Legend	Feature Completed	Robert Desrosiers	0	10/14/2011
00 - Launch Test Bar - Tab 3 - Filter By Date	Feature Completed	Robert Desrosiers	0	10/14/2011
00 - Top Test Bar - Display Location Level Based Filter	Feature Completed	Robert Desrosiers	0	10/14/2011
00 - Mobile - Map	Feature Completed	Robert Desrosiers	0	10/14/2011
00 - Admin - Dashboard	Feature Completed	Robert Desrosiers	0	10/14/2011



# Technical Success/Challenges

- Success:
  1. Out to Production in a few weeks vs. a few months
  2. System's content well-received
- Challenges:
  1. Maintaining data is cumbersome
  2. Silverlight is phasing out – v2.0 will be a complete overhaul using HTML5 and ESRI's JavaScript API



# Management Success/Challenges

- Success:
  1. Mirrors the newly created Project Approval Process
  2. Executive management very supportive – high ROI
  3. Tool used for Terminal Coordination Meetings
- Challenges:
  1. Complexity of working with different divisions/groups
  2. Story-boarding early on vs. schedule pressure



# Benefits for LAWA

- Quickly bridge gap between existing and record drawings
- Resolve conflicts “on paper” rather than in the “field”
- Minimize passenger inconvenience
- More efficient packaging of work
- More information for project managers in terminals – know the “big picture” rather than individual projects



# Future Plans

- Include Airfield Logistics – Laydown Areas
- Integrate Facilities Management and Maintenance data
- CALM Dashboard – summary statistics
- Framework for other initiatives – sold GIS to new users
- Opened the Door to Enterprise GIS at LAX



# Questions and Comments

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