



2035 Long-Term Comprehensive Plan



16 July 2015

City of Minneapolis – Intergovernmental Relations (IGR) Committee Briefing



Briefing Agenda

- LTCP Purpose, Background, Goals
- Planning Process
 - Aviation Activity Forecast
 - Facility Requirements Analysis
 - Development Alternatives
 - Noise Analysis
- Stakeholder Engagement
- Timeline



MSP – 2014 Aerial Photo



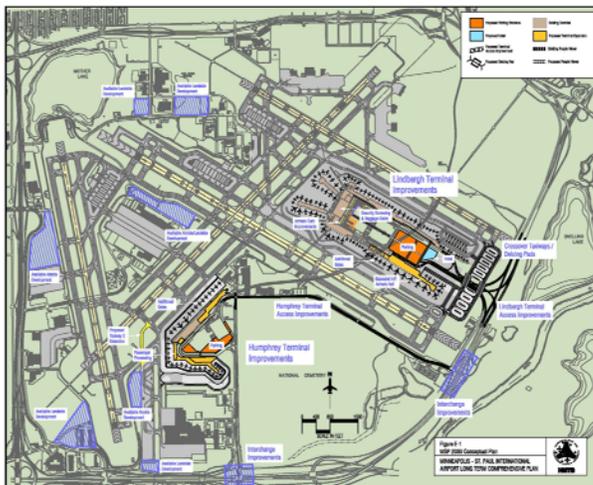
LTCP Purpose

- Purpose
 - Update view of future facility needs
 - Serve as the “road map” to guide our development strategy and shape our 7-Year Capital Improvement Program
 - Assesses when facility improvements are needed



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2010 LTCP Recommendation



- 2030 Planning Horizon
 - Existing facilities require expansion
 - Balance passenger demand between Terminal 1 Lindbergh and Terminal 2 Humphrey Terminals
 - Relocate non-Delta carriers
- Follow-on Environmental Assessment (EA)



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2035 LTCP Goals

Goal #1:

Plan for future facilities that will maintain and enhance the customer service experience while promoting operational efficiency and flexibility throughout the entire MSP campus.

Goal #2:

Produce a plan that promotes fiscal viability, incorporates environmental stewardship, and infuses sustainable thinking – while at the same time enhancing the Airport’s competitive position in the marketplace.

Goal #3:

Through the planning process, expand effectiveness through strengthened external relationships and partnerships with customers, tenants, neighboring communities, and governmental agencies.

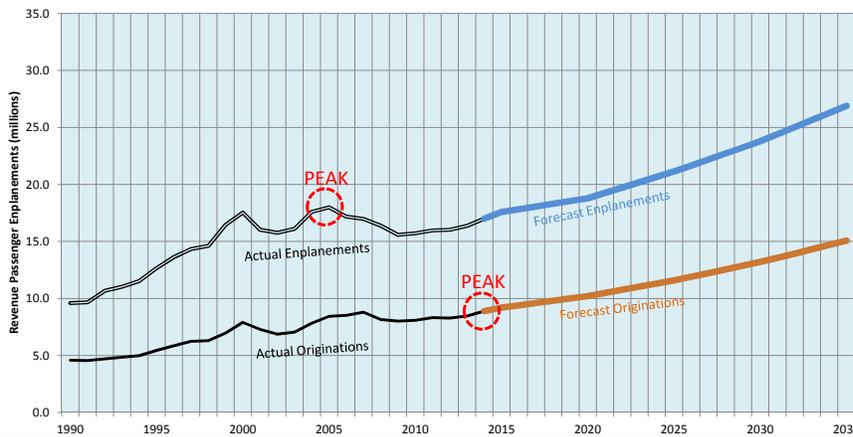


OUR VISION:
To give our customers the best airport experience in North America.

Minneapolis-St. Paul International
Arlisa • Anoka County/Burns • Crystal • Flying Cloud • Lake Echo • St. Paul Downtown



2035 LTCP Passenger Forecast (2015 – 2035)

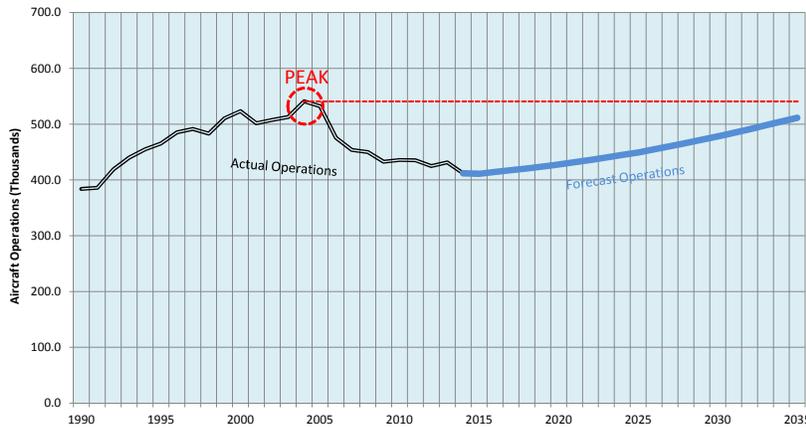


- Originations
 - ~9m in 2014
 - ~15m by 2035
 - 2.5% AAG 2014-2035
- Enplanements
 - ~17m in 2014
 - ~27m by 2035
 - 2.2% AAG 2014-2035
 - Surpass historical peak before 2020

Source: HNTB Forecast
AAG = Average Annual Growth Rate



2035 LTCP Aircraft Operations Forecast (2015 – 2035)



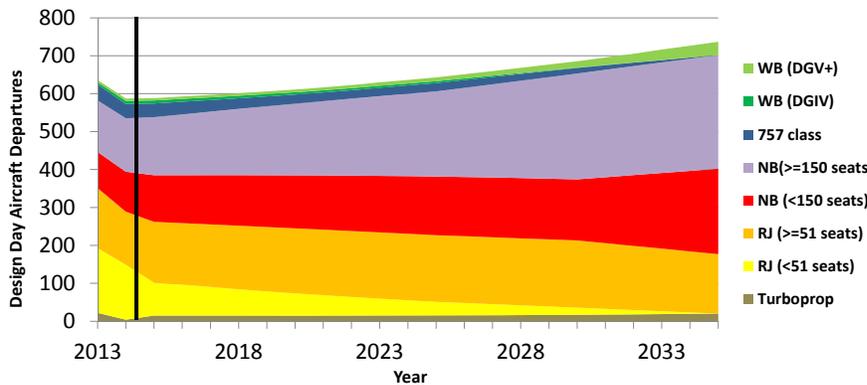
- 511k operations in 2035
 - 412k in 2014
 - +1.0% AAG 2014-2035
 - 2004 peak not exceeded in forecast period



Source: HNTB Forecast
AAG = Average Annual Growth Rate



2035 LTCP Aircraft Fleet Mix Forecast



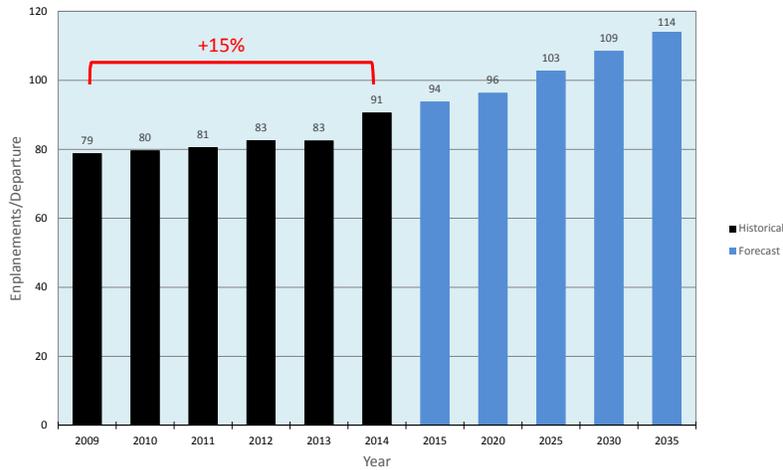
- Daily Aircraft Departures by Type
 - Continual reduction in small regional jet (RJ) operations
 - Significant growth in narrowbody (NB) aircraft operations
 - Some growth in widebody (WB)



Source: HNTB Forecast



2035 LTCP Forecast Wrap-Up



- Enplanements per Departure
 - 79 in 2009
 - 91 in 2014
 - 114 by 2035
- Key Takeaways
 - Airlines will move more passengers with larger aircraft
 - Projected 2035 aircraft operations do not exceed historical peak
 - Airfield will be adequate through planning horizon



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LTCP Facility Requirements Analysis

- Assessing capability of existing facilities to meet projected demand
- Focus Areas:
 - Aircraft Gates
 - Terminal Processors
 - Concourse Sizing
 - Public Parking
 - Departures & Arrivals Curbside
- Gates and Terminal Processors largely adequate through early 2020's
- Parking and Curbside deficiencies pre-2020



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Development Alternatives

- Determining the practical capacity of the Terminal 1 Complex
 - Balancing airside, terminal, and landside capacity
 - Maintaining level-of-service standards
 - An incremental approach to the Full Airlines Relocate scenario
 - Focus Areas:
 - Gate Concepts
 - T1 Arrivals Curb Concepts



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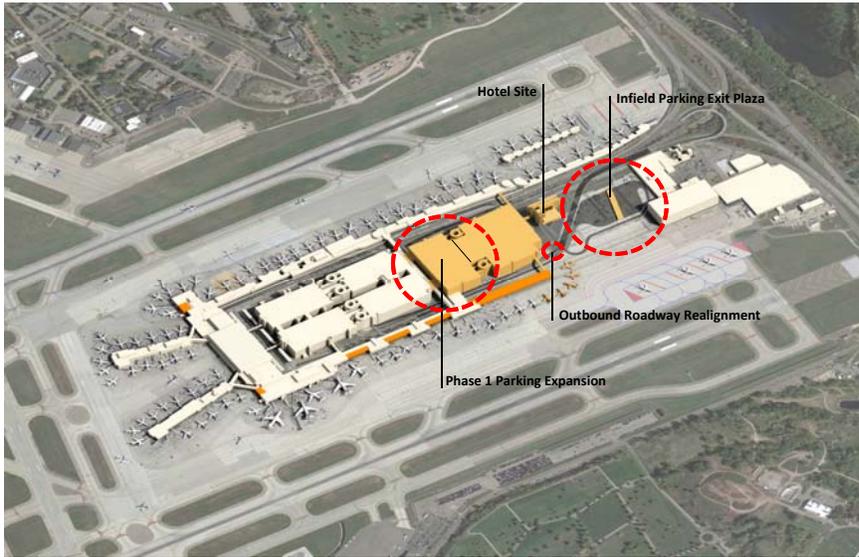


WORK IN PROGRESS Airlines Relocate Scenario Incremental 2035 Phase T1 Gate Concept

- Concept Elements
 - Phase 1 Parking Expansion with Infield Exit Plaza
 - “Infill” De-Icing Pad
 - 8-gate expansion
 - 5 net new gates
 - 7 gate “overflow” to T2

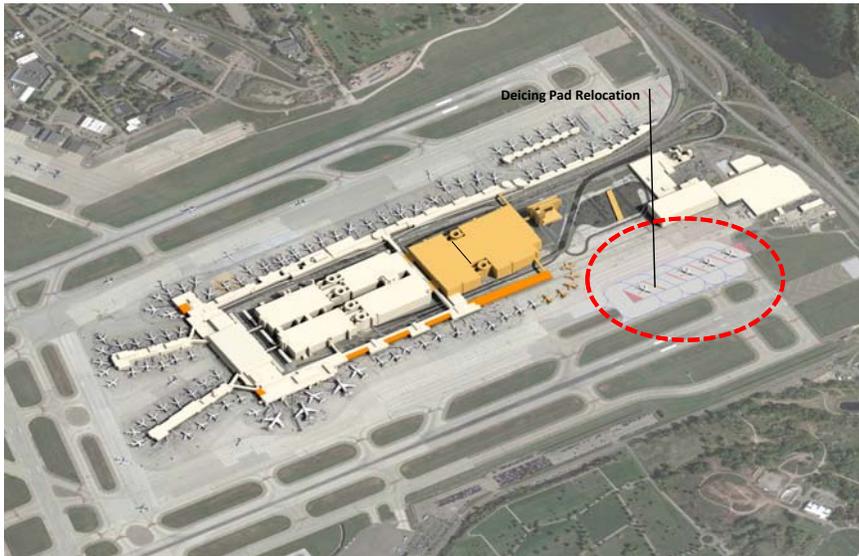


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WORK IN PROGRESS
Airlines Relocate Scenario
Incremental 2035 Phase
T1 Gate Concept

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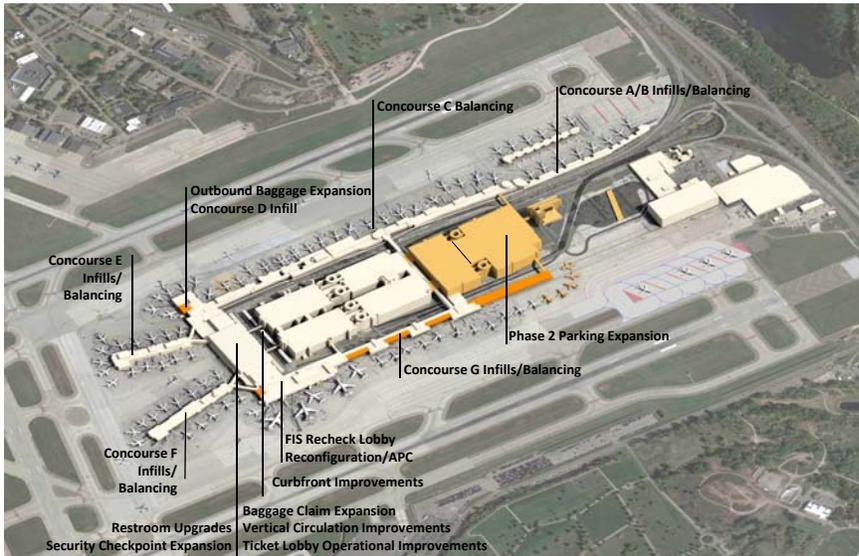
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WORK IN PROGRESS
Airlines Relocate Scenario
Incremental 2035 Phase
T1 Processor Improvements

- In 2015-2021 CIP
 - Curbfront Improvements
 - Outbound Baggage
 - Inbound Baggage Claim
 - FIS Improvements
 - Operational Improvements
- Beyond CIP
 - Concourse Infills/Space Rebalancing
 - Phase 2 Parking Expansion





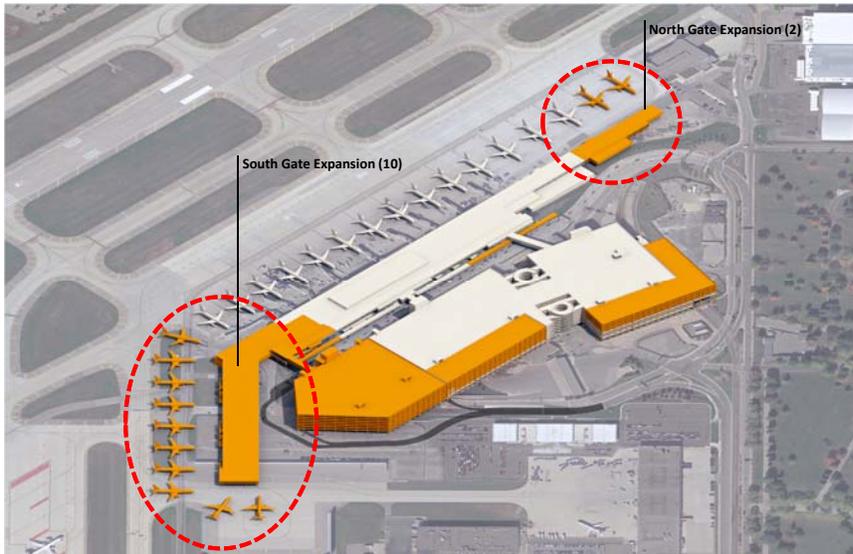
WORK IN PROGRESS

Airlines Relocate Scenario Incremental 2035 Phase T2 Improvements

- 12 gate expansion
- Terminal Improvements
 - Ticketing
 - Baggage Claim
 - FIS
- Landside Improvements
 - Curb extension/widening
 - Parking expansion
 - Outbound Roadway



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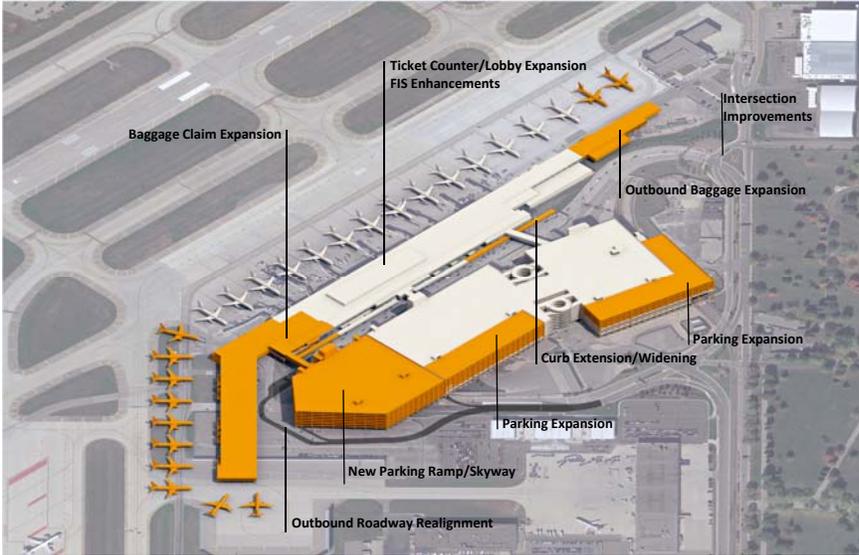
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LTCP Noise Analysis



Noise Contours

- 2014 Actual Condition (Base Case)
- 2035 Recommended Development Condition
- Considerations for 2035 Forecast:
 - Increase in total operations
 - Day/night split assumptions
 - Changes in aircraft types
 - Runway use assumptions




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Comparison of Total Operations

| Operations Category | 2014 Base Case | 2015 Forecast |
|-------------------------------------|----------------|----------------|
| Scheduled Passenger Air Carrier (a) | 375,072 | 471,498 |
| Cargo | 12,199 | 13,436 |
| Charter | 190 | 190 |
| GA (b) | 21,862 | 23,754 |
| Military | 2,437 | 2,437 |
| Total | 411,760 | 511,315 |

Notes:

(a) Includes both air carrier and regional carrier operations

(b) Includes both GA and non-scheduled air taxi operations

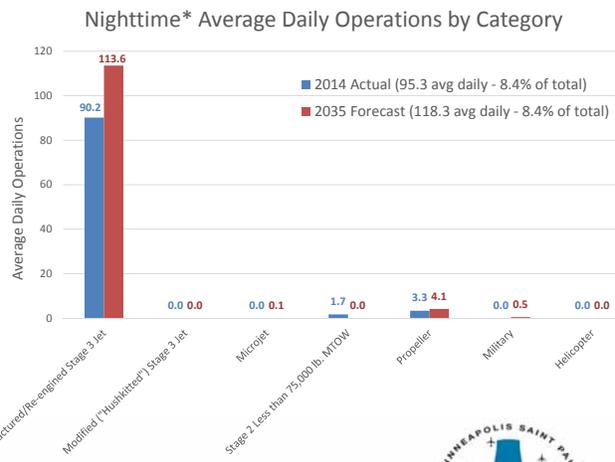
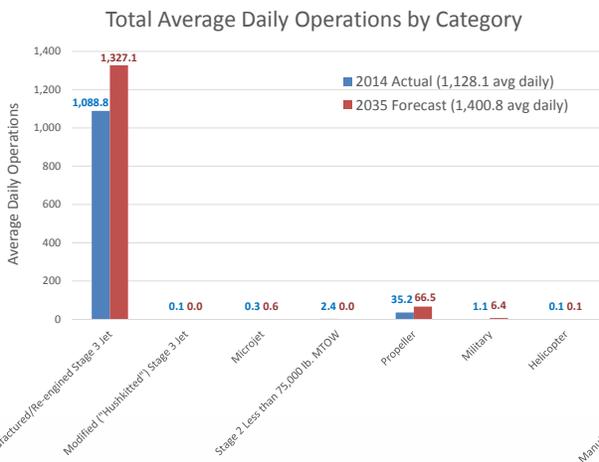
- Total Operations are forecast to increase 24% from the 2014 base case condition
- Predominant increase is in Scheduled Passenger Air Carrier Operations
- Annual operations projected in 2015 is not anticipated to exceed the historic peak of 540,727 in 2004



Source: MACNOMS data adjusted to match FAA OPSNET, 2015 (2014 Actual); HNTB Activity Forecasts, 2015 (2015 Forecast)



Comparison of Average Daily Operations



*INM Night – 10:00 pm-7:00 am
Source: MACNOMS data adjusted to match FAA OPSNET, 2015 (2014 Actual); HNTB Activity Forecasts, 2015 (2015 Forecast)



Future 2035 Aircraft Type Considerations



Airbus New Engine Option (neo)
A319, A320, A321

- 164 average daily operations in 2035 forecast
- 15 dB below Stage 4 noise standards
- Modeled as A319-131, A320-232, A321-232, respectively

Source: www.airbus.com



Boeing B737 MAX
MAX 7, MAX 8, MAX 9

- 276 average daily operations in 2035 forecast
- 40% noise reduction from B737-800
- Modeled as B737-800

Source: www.boeing.com

- Some forecast 2035 aircraft types are not yet included in the noise model database.
- The future 2035 forecast aircraft are upgrades to aircraft currently in the noise model database.
- The newest available aircraft in the noise model database was used to represent these future aircraft.
- In the last 40 years, the aviation industry has cut noise by 75%. (Airbus, January 2015)



Comparison of Runway Use Percentages

| Operation | Runway | Day | | Night* | | Total | |
|--------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | 2014 Actual | 2035 Forecast | 2014 Actual | 2035 Forecast | 2014 Actual | 2035 Forecast |
| Arrival | 4 | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| | 12L | 19.5% | 19.0% | 14.3% | 10.0% | 19.0% | 18.2% |
| | 12R | 19.7% | 19.8% | 26.7% | 29.1% | 20.4% | 20.7% |
| | 17 | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% |
| | 22 | 0.0% | 0.4% | 0.0% | 0.6% | 0.0% | 0.4% |
| | 30L | 19.0% | 18.9% | 35.5% | 41.4% | 20.6% | 21.0% |
| | 30R | 22.9% | 20.9% | 21.6% | 18.8% | 22.8% | 20.7% |
| | 35 | 18.8% | 20.9% | 1.9% | 0.0% | 17.2% | 18.9% |
| Total | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Departure | 4 | 0.1% | 0.1% | 0.3% | 0.1% | 0.1% | 0.1% |
| | 12L | 13.0% | 13.0% | 14.4% | 17.2% | 13.1% | 13.3% |
| | 12R | 4.9% | 6.8% | 28.3% | 25.5% | 6.6% | 8.2% |
| | 17 | 24.0% | 21.9% | 15.8% | 15.4% | 23.4% | 21.5% |
| | 22 | 0.0% | 0.4% | 0.0% | 0.6% | 0.0% | 0.4% |
| | 30L | 33.2% | 26.8% | 27.8% | 22.5% | 32.8% | 26.5% |
| | 30R | 24.7% | 30.9% | 13.4% | 18.7% | 23.9% | 30.0% |
| | 35 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

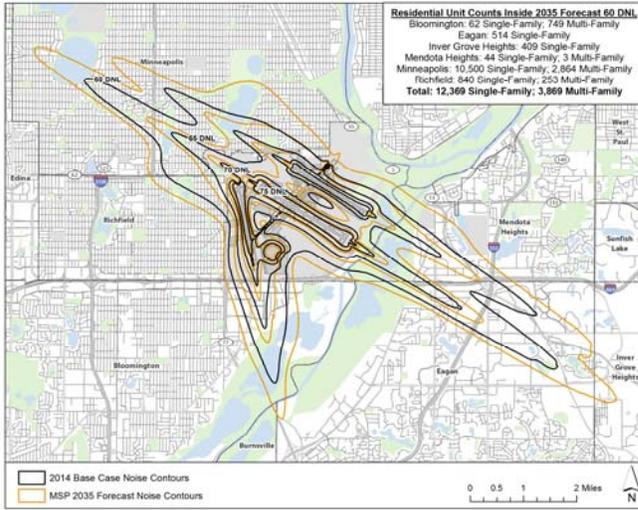
- The 2035 Forecast runway use is the same as the MSP 2020 Improvements EA/EAW runway use for the Airlines Relocated Alternative.
- During the EA/EAW process, runway use percentages were determined based on airport and airspace simulation, with consideration of the RUS and the FAA's runway selection patterns relative to operational flows, weather conditions and aircraft destinations and origins.
- The RUS is a major factor in nighttime runway use percentages.
- Sometimes during the nighttime when there is low demand, the FAA will use the parallel runway closest to the aircraft arrival gate. As a result, arrival percentages to the south parallel runway (12R/30L) at night are higher than the north parallel (12L/30R).
- This has an effect on the arrival noise contour lobes off the ends of the south parallel runway.



*INM Night – 10:00 pm-7:00 am
Note: Total may not add up to 100% due to rounding.
Source: MACNOMS, 2015 (2014 Actual); MACNOMS and HTNB analysis, 2015 (2035 Forecast)



Noise Contour Impact Comparison



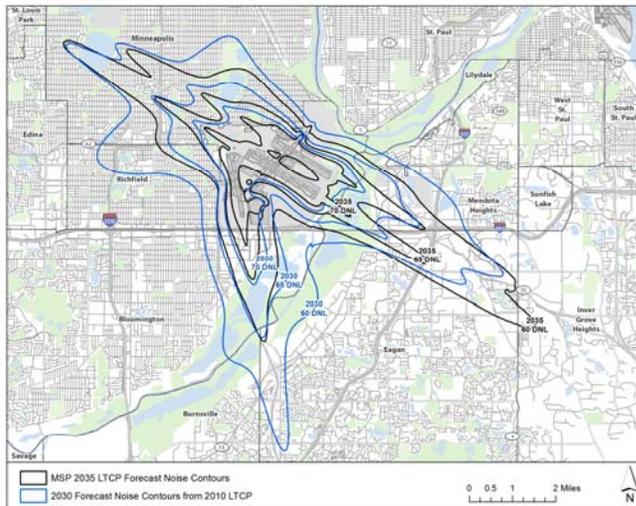
2035 Forecast vs. 2014 Base Case

- The 2035 Forecast 65 DNL noise contour is 53.8% larger than the 2014 Base Case 65 DNL noise contour.
- The 2035 Forecast 60 DNL noise contour is 56.1% larger than the 2014 Base Case 60 DNL noise contour.
- In Minneapolis, 5,283 single-family homes and 1,273 multi-family homes are inside the 2014 Base Case 60 DNL noise contour.
- In Minneapolis, 10,500 single-family homes and 2,864 multi-family units are inside the 2035 Forecast 60 DNL contour.

Notes: Parcel intersect method; Multi-Family >1 unit.
 Source: MAC, 2015



Noise Contour Impact Comparison



2035 Forecast vs. 2030 Forecast (from 2010 LTCP)

- The 2035 Forecast 65 DNL noise contour is 59.6% smaller than what was forecasted in the 2010 LTCP for the 2030 65 DNL noise contour.
- The 2035 Forecast 60 DNL noise contour is 47.7% smaller than what was forecasted in the 2010 LTCP for the 2030 60 DNL noise contour.
- In Minneapolis, there are 4,400 fewer single-family homes and 2,336 fewer multi-family units inside the 2035 Forecast 60 DNL contour as compared to what was forecasted in the 2010 LTCP for the 2030 60 DNL noise contour.

Notes: Parcel intersect method; Multi-Family >1 unit.
 Source: MAC, 2015



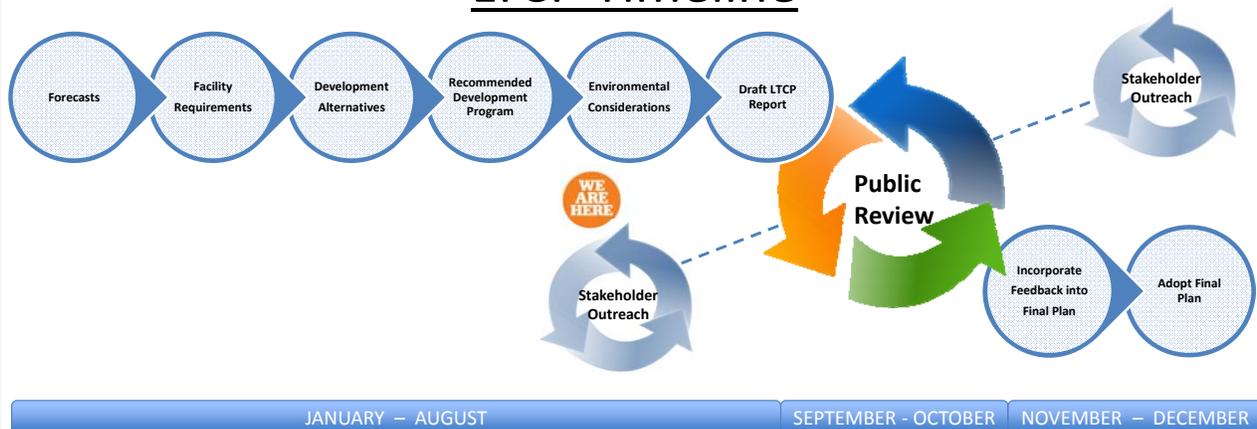
LTCP Stakeholder Outreach Strategy

- Pre-Draft Public Information Meeting
- Formal LTCP Public Review
 - Written comment period (45 days)
 - Two (2) Public Information Meetings
- LTCP Final Draft/Adoption
 - Additional stakeholder outreach as needed



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LTCP Timeline



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Thank you!

