Logan Airport
2022 Environmental Status and Planning Report
Public Information Session

June 26th, 2023

Logan Airport 2022 ESPR - Information Session

Agenda

- Welcome and Introductions

- Information Session Purpose

- Overview of ESPR and EDR Process

- ESPR Contents

- Technical Analyses Methodology

  - Forecasting

  - Activity Levels

  - Noise Abatement

  - Air Quality and Emissions Reductions

  - Ground Access

- Future Meetings and Questions

Presenters

Massport

- Anthony Guerriero

- Brad Washburn

MEPA/EEA

- Jennifer Hughes

Consultant Team

- Carol Lurie – Project Manager

Purpose of Today's Public Information Session

- Share an overview of the ESPR contents and key technical analyses

- Provide an overview of the methodology for the analysis that goes into the ESPR
  - Future forecast of passenger levels and aircraft operations
  - Noise
  - Air quality and greenhouse gas
  - Ground transportation to and from Logan Airport

- Provide opportunity for community to learn about the ESPR and EDR process

- Enhance outreach to community in line with Massport goals

Massport has been preparing comprehensive annual environmental filings for Logan Airport since the early 1980s

- **Represents the longest detailed tracking of environmental impacts of any US airport**

- The reports analyze the *cumulative effects* of Logan Airport operations and activities

- Massport's **Environmental Status & Planning Reports (ESPR)** and **Environmental Data Reports (EDR)** are the only detailed facility annual environmental reports required by the Secretary of Energy & Environmental Affairs (EEA) for Massachusetts

- ESPRs are prepared every 5 years with interim annual EDRs

  - Last EDR reported on 2020/2021

  - ESPR will be prepared for 2022

- Circulation includes over 300 agencies, elected officials, community groups, and individuals

- Since 2010, the full documents are posted on the Massport website

Scope for 2022 ESPR

- Appendix C of the *2020/2021 EDR* presented a Proposed Scope for the *2022 ESPR*

- The EEA Secretary's Certificate on the *2020/2021 EDR* augments the Proposed Scope for the 2022 *ESPR*

- As directed by the Secretary, Massport will hold public information sessions on the 2022 ESPR to provide the public with information on:
  - Activity levels/forecasting
  - Airport planning activities
  - Regional transportation
  - Ground transportation
  - Aircraft noise
  - Air quality

BOSTON LOGAN INTERNATIONAL AIRPORT

2020/2021 EDR
ENVIRONMENTAL DATA REPORT

November 2022
EEA #3247

SUBMITTED TO
Executive Office of Energy and Environmental Affairs, MEPA Office

SUBMITTED BY
Massachusetts Port Authority
Strategic & Business Planning

PREPARED BY
vhb.

IN ASSOCIATION WITH
Harris Miller Miller & Hanson
Crawford, Murphy & Tilly
ICF
InterVISTAS Consulting

Logan Airport ESPR will report on 2022 and likely future conditions

ESPRs/EDRs are designed to facilitate long-range tracking and comparison of operations and environmental impacts.

2022 ESPR Contents

Overview of Executive Summary (Translated)

Massport's Net Zero commitment and Sustainability

Airport Planning Activities

Logan Airport's Role in the Regional Transportation System

Environmental Compliance and Management/Water Quality

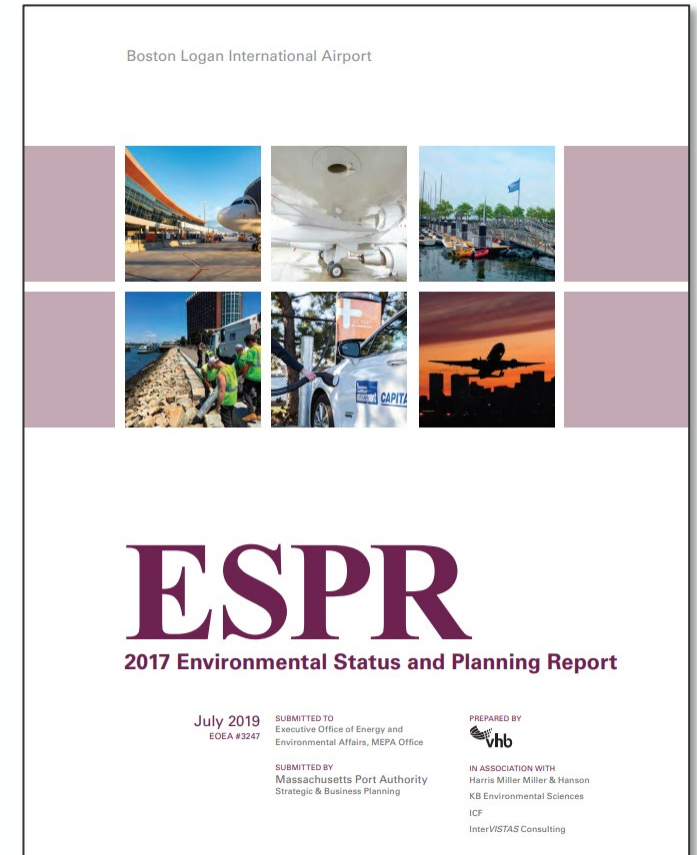Environmentally Beneficial Measures and Project Mitigation Tracking

Forecast Dependent Topics

Current and Future Passengers and Aircraft Operations

Ground Access to and from Logan Airport

Noise Environment and Abatement Measures

Air Quality/GHG Emissions and Reduction Strategies

Boston Logan International Airport

ESPR

2017 Environmental Status and Planning Report

July 2019
EOEA #3247

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KB Environmental Sciences
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Massport's Net Zero GHG Commitment and Extensive Sustainability and Resiliency Programs

- Net Zero GHG Emissions commitment by 2031 for **Massport-controlled** activities

- Support for airlines and tenants to reduce their GHG emissions

- Airports Council International - Airport Carbon Accreditation Program Certification application

- Massport's Sustainable and Resiliency Standards

- Sustainability rating certified facilities and infrastructure

- Climate change and resiliency planning – critical assets enhanced

- Commitment to community parks and open space

NET ZERO BY 2031

Scope 1 and 2 | Emissions, Mitigation by Pathway (2031)
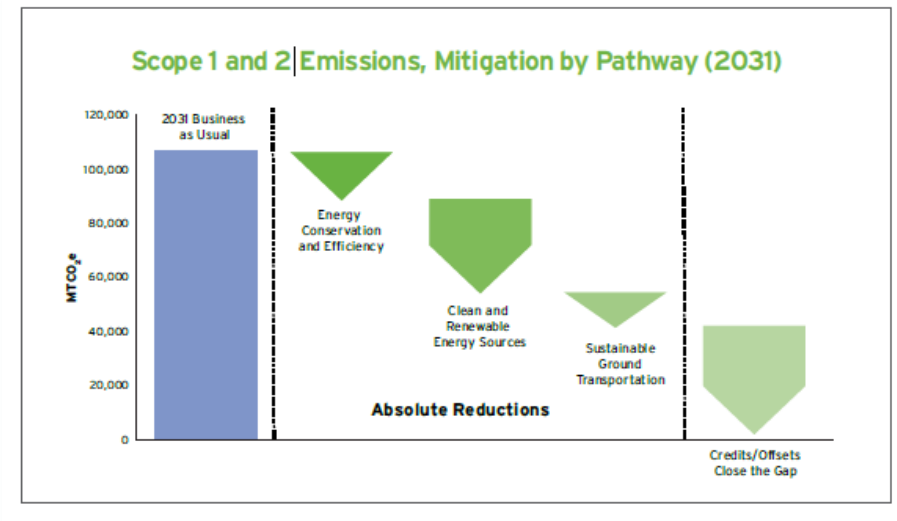
Airport Planning

Describes recently completed, ongoing and upcoming projects

- Ground transportation and parking projects

- Terminal area, airside area, and service area projects and planning concepts

- Airport buffer areas and open space projects

- Energy, resiliency, and sustainability planning
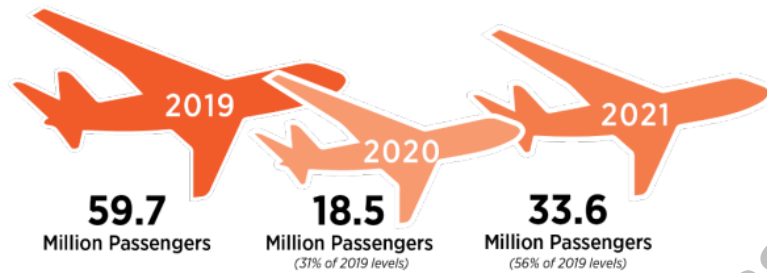

Photo Credit – David Doane
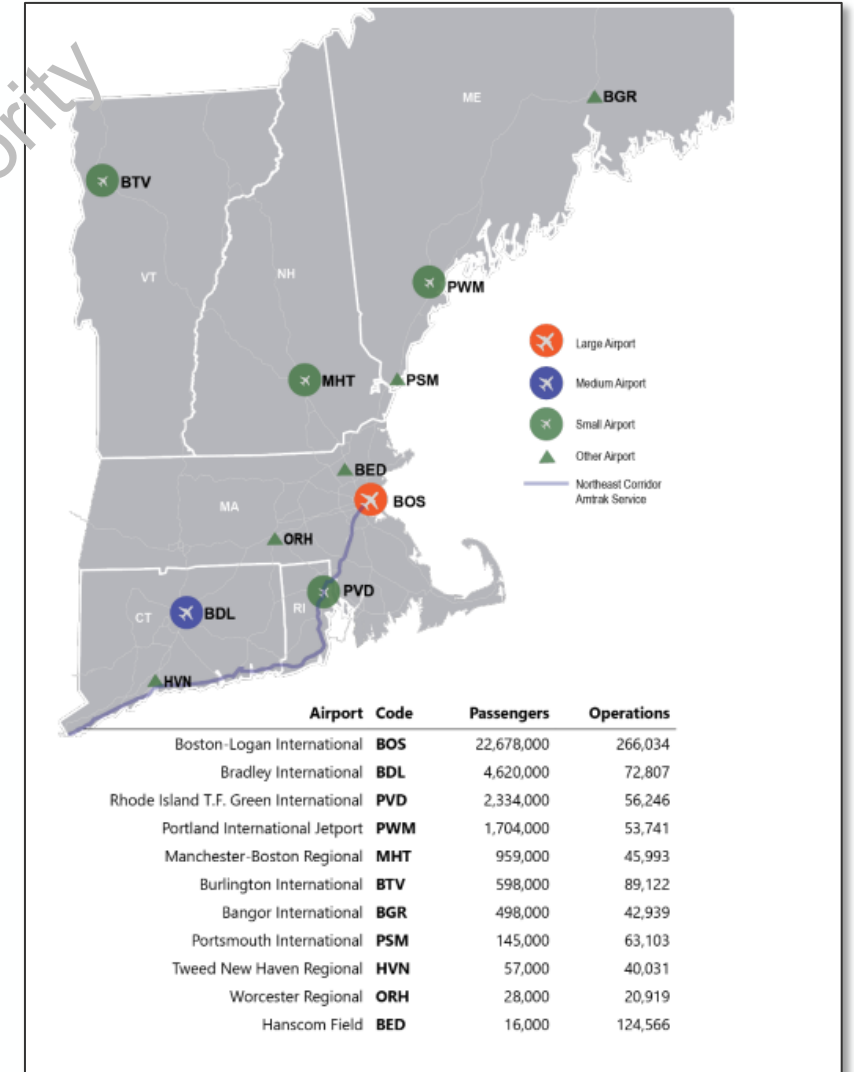

Photo Credit – Boston Globe

Regional Transportation System

- Massport's airports' roles in the regional transportation network

- Overview of regional airports' activities and plans

- Amtrak service

- Collaborative regional efforts

Regional Air Passenger Trends

2019
59.7
Million Passengers

2020
18.5
Million Passengers
(31% of 2019 levels)

2021
33.6
Million Passengers
(56% of 2019 levels)

| Airport	Code	Passengers	Operations
Boston-Logan International	**BOS**	22,678,000	266,034
Bradley International	**BDL**	4,620,000	72,807
Rhode Island T.F. Green International	**PVD**	2,334,000	56,246
Portland International Jetport	**PWM**	1,704,000	53,741
Manchester-Boston Regional	**MHT**	959,000	45,993
Burlington International	**BTV**	598,000	89,122
Bangor International	**BGR**	498,000	42,939
Portsmouth International	**PSM**	145,000	63,103
Tweed New Haven Regional	**HVN**	57,000	40,031
Worcester Regional	**ORH**	28,000	20,919
Hanscom Field	**BED**	16,000	124,566

Regional Airport Network

Water Quality/Environmental Compliance

- Reports on compliance with water quality requirements according to the National Pollutant Discharge Permit for the airport/stormwater outfalls and Airport Rescue and Fire Fighting Facility

- Provides status update on tank management plan

- Tracks Massport's and tenants' compliance with the Massachusetts Contingency Plan for site remediation from fuel handling and other activities

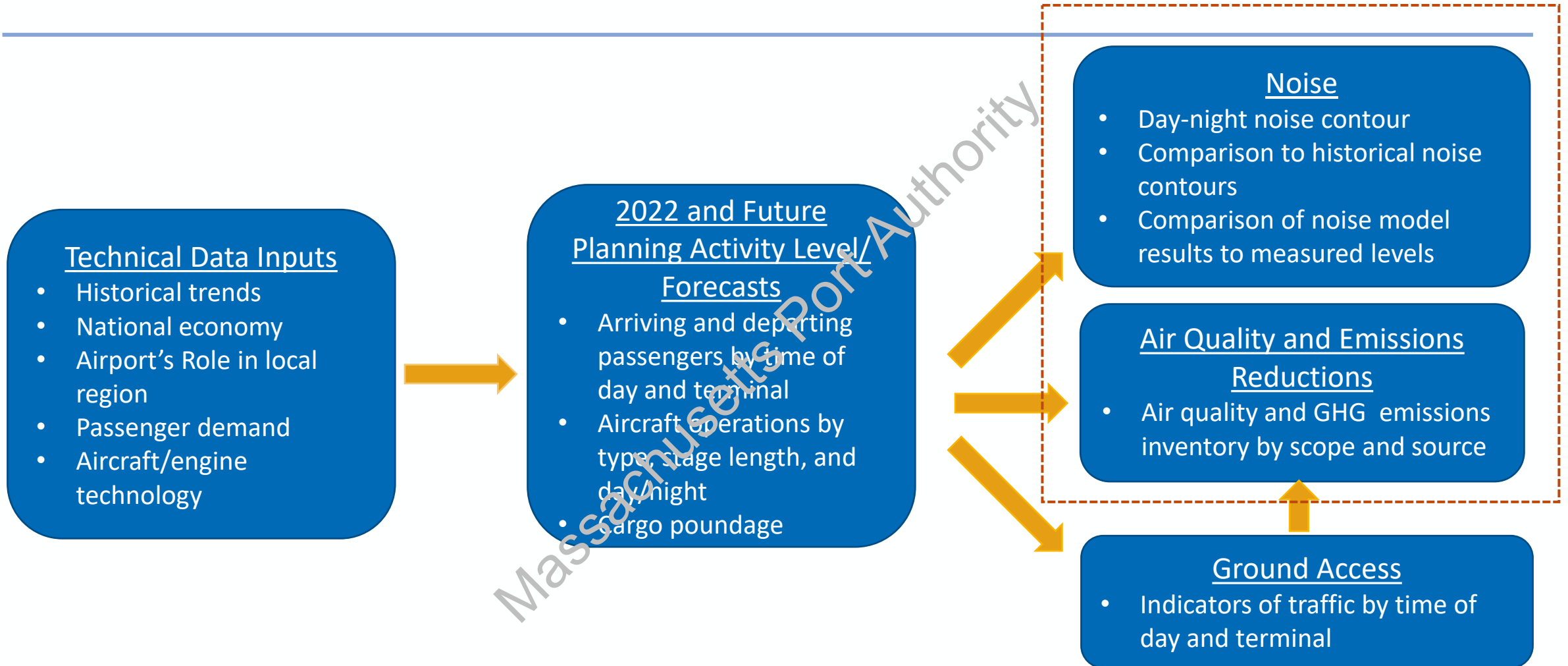**Harborwalk clean up**

Logan Airport stormwater outfalls
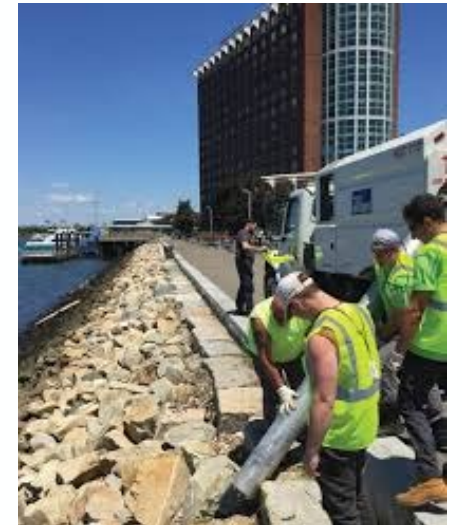
Environmentally Beneficial Measures and Project Mitigation Tracking

- Describes environmentally beneficial measures implemented by Massport

- Summarizes status of projects with ongoing mitigation (Section 61 commitments)

ESPR Technical Studies Methodology

Technical Data Inputs
- Historical trends
- National economy
- Airport's Role in local region
- Passenger demand
- Aircraft/engine technology

2022 and Future Planning Activity Level/ Forecasts
- Arriving and departing passengers by time of day and terminal
- Aircraft operations by type, stage length, and day/night
- Cargo poundage

Noise
- Day-night noise contour
- Comparison to historical noise contours
- Comparison of noise model results to measured levels

Air Quality and Emissions Reductions
- Air quality and GHG emissions inventory by scope and source

Ground Access
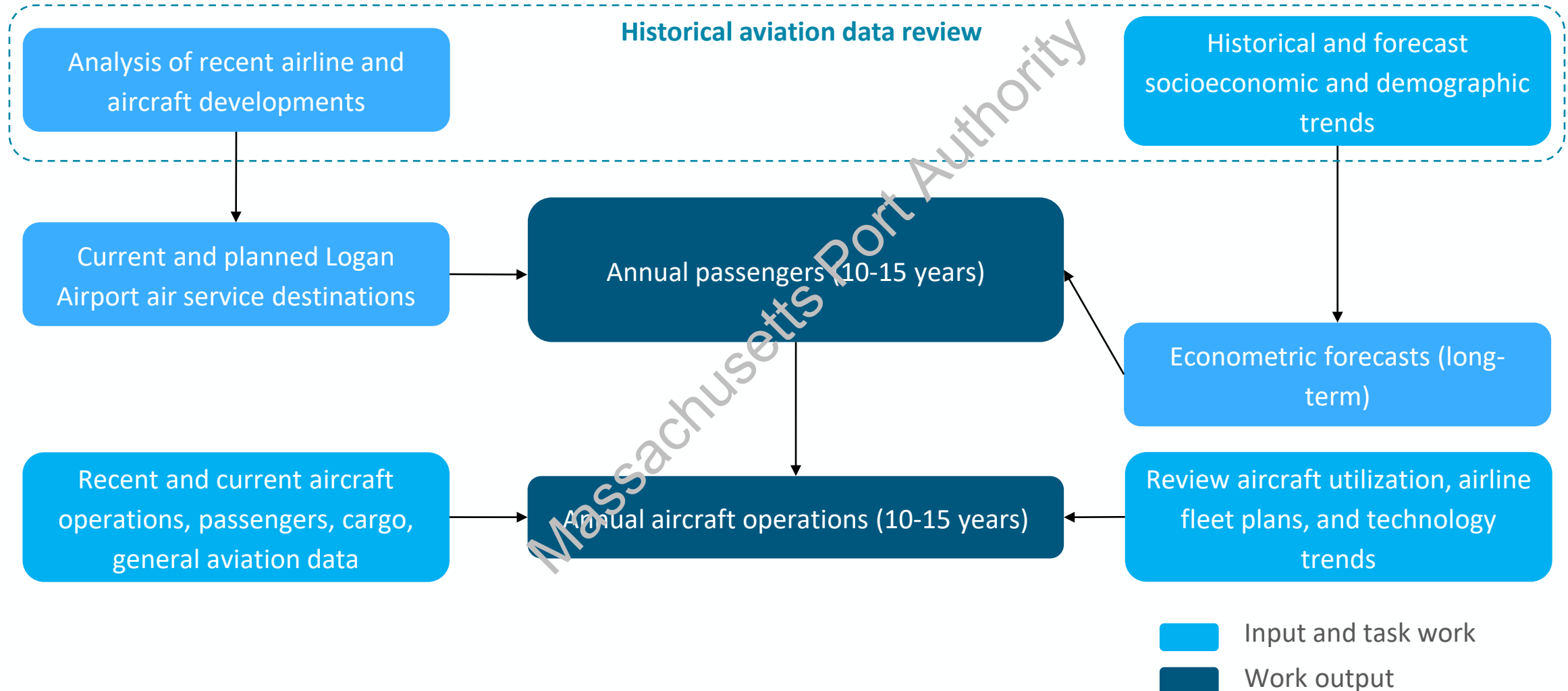- Indicators of traffic by time of day and terminal

ESPR Forecast

Forecast of passengers, aircraft operations, and cargo volumes updated from prior forecasts for Logan, considering most recent data and trends

- Overall approach: "best practice" industry forecasting techniques analyzing:
  - 10+ years of historical patterns of passenger traffic at Logan Airport
  - Recent trends and "shocks" at Logan Airport and in the industry
  - The outlook for future aviation demand based on national and regional economic factors
  - Role of Logan Airport in the regional transportation system
- Industry data sources including:
  - Massport data on airline and passenger activity
  - US DOT data on passengers, flights, routes, aircraft
  - Flight schedule databases
- Developing detailed forecasts:
  - International and domestic passenger and aircraft operations
  - Daily flight schedules
  - Terminal usage by passengers
  - Aircraft likely to be in the future fleet at Logan Airport

ESPR Forecast Methodology

Historical aviation data review

Analysis of recent airline and aircraft developments

Historical and forecast socioeconomic and demographic trends

Current and planned Logan Airport air service destinations

Annual passengers (10-15 years)

Econometric forecasts (long-term)

Recent and current aircraft operations, passengers, cargo, general aviation data

Annual aircraft operations (10-15 years)

Review aircraft utilization, airline fleet plans, and technology trends

Input and task work

Work output

Forecasting Trends Analysis

Uses a blend of near-term trends and insights with long-term economic factors

Recent trends in the airline seats available at Logan Airport and development plans reported by the major airlines

Information and air service insights provided by Massport

General airline industry conditions, such as airline profits, staffing levels, etc.
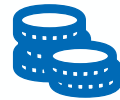
Potential economic indicators such as regional and national GDP, personal income, population, airline ticket prices, and fuel prices

Review of FAA Terminal Area forecasts and Aerospace forecasts

Long-term trends in aircraft fleet development

Review of benchmark industry forecasts

Planning Activity Levels Account for Forecast Variability

- Long range forecasts are uncertain making it difficult for planning airport facilities

- Planning activity levels ("PALs") helps determine when demand may trigger the need for additional facilities

- PALs are not tied to specific years as actual activity levels may occur earlier or later than the forecast predicts

- Allows airport management to accelerate/ decelerate capital projects based on when demand occurs

- Facilities are built when there is a demand for additional space or gates

 o Constructing facilities and terminals/gates will not induce demand

Sample Annual Passenger Levels and Aircraft Operations
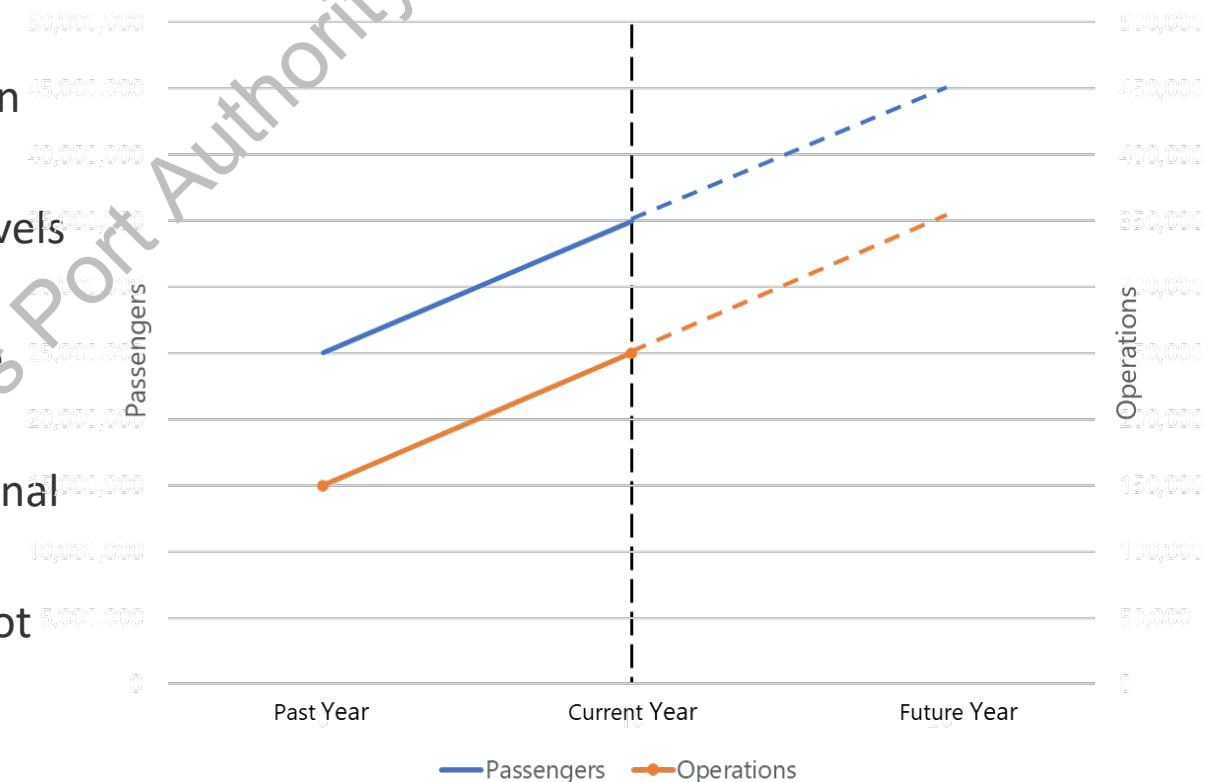
Detailed Forecasts of Daily Activity Provide the Inputs for Technical Analyses

- Typical detailed forecasts for daily passengers and aircraft operations are:

  - *Average day of the peak month* (ADPM) – an industry standard metric which represents a generally busy day of the year

  - *Average annual day* (AAD) – represents activity during the average day of the year

- Daily flight schedule information will be derived from the annual forecast, based on expected service changes, and fleet evolution by Logan Airport air carriers

Analysis	Detail	Detailed forecast information required as input to analysis
Noise	AAD	Aircraft operations by type, origin and destination, and day/night
Air quality	AAD	Aircraft operations by type
Ground access	ADPM	Arriving and departing local passengers by terminal and by time of day
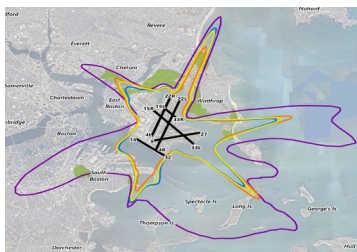
Ground Access to and from Logan Airport
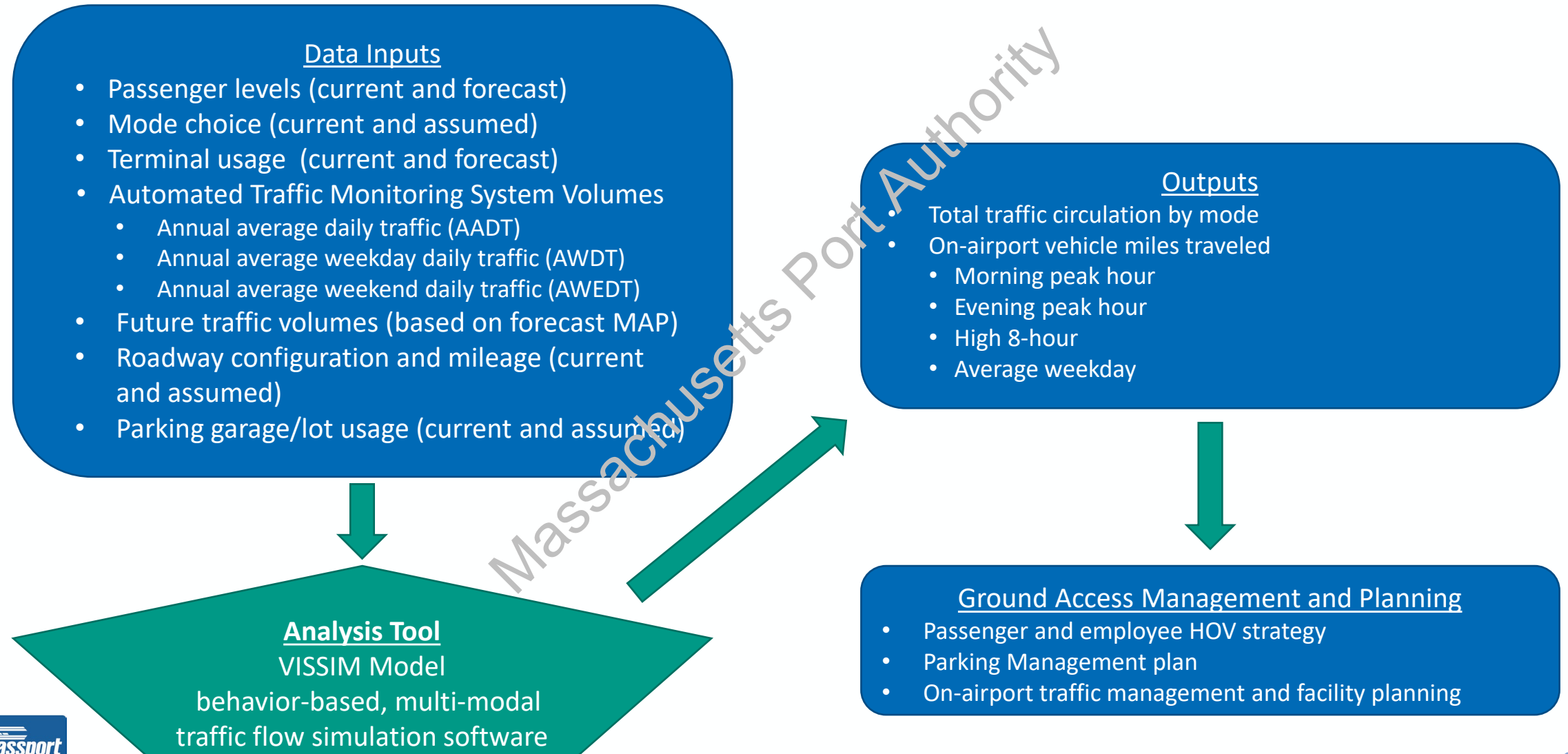
Technical Analyses

- Transportation modes to and from the airport
  - Rapid transit (MBTA)
  - Buses (Logan Express, private buses/coaches)
  - Taxis and limousines
  - RideApp (Uber, Lyft etc.)
  - Automobiles (Parking or dropping off/ picking up)

- Vehicle miles travelled (VMT)

- Average Annual Daily Traffic, Average Annual Weekly Traffic

- Short- and long-term parking

Forecasting inputs for Ground Access

- Total arriving and departing domestic and international passengers

- By time of day

- By terminal

Ground Access Methodology

Data Inputs
- Passenger levels (current and forecast)
- Mode choice (current and assumed)
- Terminal usage (current and forecast)
- Automated Traffic Monitoring System Volumes
  - Annual average daily traffic (AADT)
  - Annual average weekday daily traffic (AWDT)
  - Annual average weekend daily traffic (AWEDT)
- Future traffic volumes (based on forecast MAP)
- Roadway configuration and mileage (current and assumed)
- Parking garage/lot usage (current and assumed)

Analysis Tool
VISSIM Model
behavior-based, multi-modal
traffic flow simulation software

Outputs
- Total traffic circulation by mode
- On-airport vehicle miles traveled
  - Morning peak hour
  - Evening peak hour
  - High 8-hour
  - Average weekday

Ground Access Management and Planning
- Passenger and employee HOV strategy
- Parking Management plan
- On-airport traffic management and facility planning

Noise Methodology

Technical Analyses

- Noise contours (Day-night average sound level contours in 5-decibel increments)

- Population counts within different contours

- Supplemental Metrics

Forecasting Inputs for Noise

- Total Aircraft operations by
  - Type
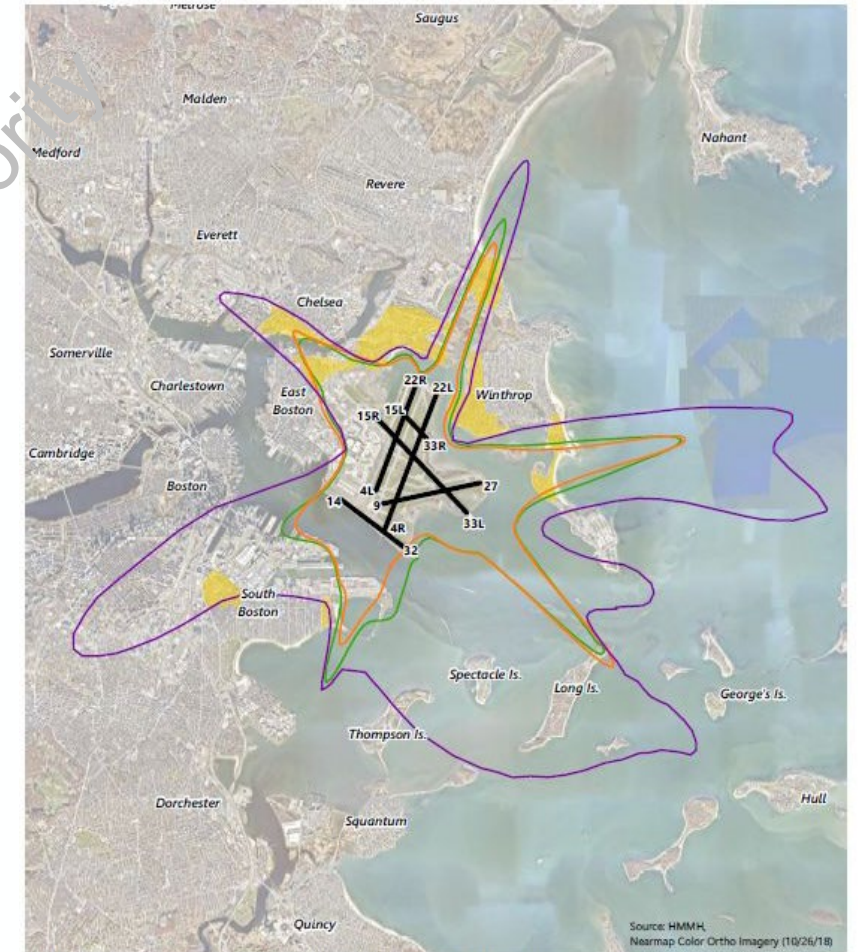 - Origin and destination
  - Day/night schedule

FIGURE 6-20 Comparison of Historical and Forecast DNL 65 dB Contours – 1990, 2017, Future Planning Horizon

2017 Environmental Status and Planning Report

1990 DNL Contour (INM)
2017 DNL Contour (AEDT 2d)
Future Planning Horizon DNL Contour (AEDT 2d)
Sound Insulation Areas

Noise Methodology

Data Inputs
- Total aircraft operations (current and forecast)
- Aircraft fleet mix (current and forecast)
- Runway use (current and assumed)
- Radar flight tracks (of current aircraft operations)
- Stage length (current and forecast)
- Day/night operations (current and forecast)

Analysis Tool
FAA Aviation Environmental Design Tool
[FAA noise and air/GHG emissions program]

Outputs
- Current Day-night noise contours
- Future Day-night noise contours
- Population impact assessment for current and future conditions
- Comparison of measured and modeled noise levels
- Supplemental Metrics
    - Cumulative Noise Index (CNI)
    - Dwell and Persistence
    - Time Above a threshold

Noise Abatement and Planning
- Residential Sound Insulation Program
- Airline Fleet Improvements
- Nighttime/Noise Rules
- Noise Complaint Line
- Noise Abatement Management Plan

Massachusetts Port Authority

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Air Quality and GHG Emissions Reductions

The Air Quality and Emissions Reductions chapters covers:

- Modeled emissions inventory for current operations

- Anticipated emissions inventory for the future planning horizon

- Greenhouse gas assessment

- Air quality emission reductions

- Air quality management goals

- Updates on other air quality efforts that apply to Massport

- Contribution to health studies

Forecasting Inputs for Air Quality and GHG

- Total Annual Aircraft operations by
  - Aircraft and engine type

Air Quality/GHG Methodology

Data Inputs

- Annual Aircraft volumes by aircraft and engine type (current and forecast)
- Aircraft taxi and delay (from FAA)
- Ground Service Equipment (current and assumed)
- Motor Vehicles volumes, VMT and curb usage (current and future modeled)
- Energy usage - electricity, fossil fuels storage and handling, renewable, sustainable fuels (current and assumed)
- Stationary and other sources (current and assumed)

Analysis Tools
- Aviation Environmental Design Tool (AEDT)
- MOtor Vehicle Emissions Simulator (MOVES) for roadway mobile sources

Outputs

- Emissions Inventory
  - Carbon monoxide
  - Oxides of Nitrogen
  - Volatile organic compounds
  - Particulate matter
  - Greenhouse gases (by Massport controlled - Scope 1 and 2, and Scope 3 – airlines/tenants/passenger access)

Air Quality Improvement and GHG Emissions Reduction

- Massport's Net Zero roadmap
- Alternative fuel program (aircraft and vehicles)
- Expanded HOV program
- Renewable energy plan
- Central heating plant conversion

Upcoming Public Information Sessions and Questions

Timing	Meeting Description
June 26, 2023	ESPR Overview
Fall/Winter 2023	Pre-Filing Preview of ESPR Findings
Spring 2024	Post-Filing ESPR Document Review

Questions ?