Written Statement on Agentic AI and IBM watsonx Orchestrate

AIRA (AI Infrastructure Resilience Assistant) is powered by an agentic AI architecture fully built using IBM watsonx Orchestrate's low-code Assistant builder. The project consists of multiple autonomous agents, each with a clearly defined role, working together within a single orchestrated assistant flow. All logic is handled entirely through message blocks, conditional branches, questions, and custom actions no external code or backend services were used. This demonstrates the power of agentic design using only the built-in capabilities of Watsonx Orchestrate.

Agent 1: Conversational Agent (Assistant Flow Start)

This agent handles all initial interactions. Built in the **Watsonx Orchestrate "Build" tab**, the assistant begins by greeting the user and collecting structured details:

- Issue type (e.g., pothole, water leak, power outage)
- Location
- Time of occurrence

Each response is saved as a variable for use by downstream agents. This agent initiates the orchestration workflow by gathering all required information from the user.

Agent 2: Classification Agent (Simulated Logic)

Next, a Custom Action block simulates the classification agent. It categorizes the issue into Road, Water, or Electrical based on predefined responses. This classification is stored as issue_type and drives the next routing decisions. While NLP classification is simulated in this version, it replicates the logic a real classifier agent would perform without code or external AI models.

Agent 3: Orchestrator Agent (Routing & Task Creation)

This core agent uses conditional Branch blocks to determine how to route the report. Based on the classified issue_type, the assistant simulates:

- Assigning the issue to the correct department
- Scheduling repair time

- Generating a unique ticket ID using variables like date, time, and type
- Sending a confirmation message back to the user

This orchestration is fully automated and dynamic, requiring no manual steps. The agent mimics a real-world dispatcher managing cross-department workflows.

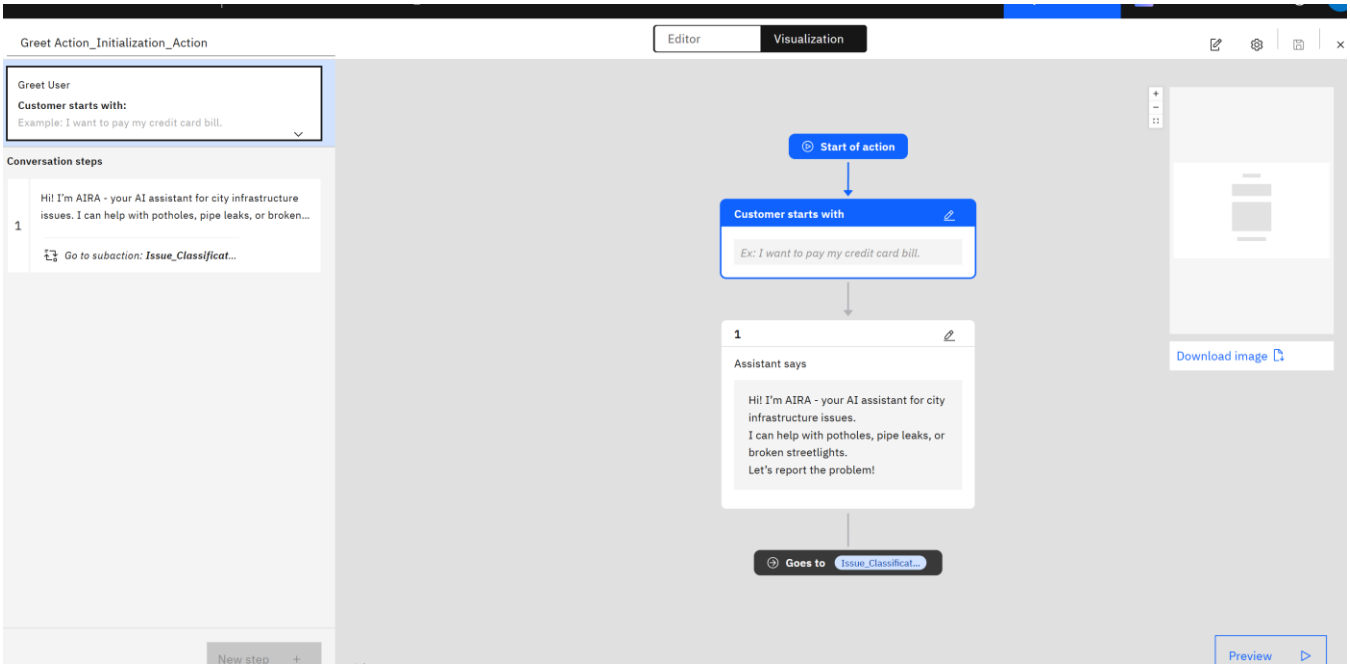
Agent 4: Status Agent (Follow-Up)

This agent activates when the user returns and asks to check the status of their report. Based on their input, the agent simulates status feedback using Message blocks (e.g., “In Progress,” “Resolved”). This feedback loop enhances transparency and simulates integration with a real municipal ticketing system.

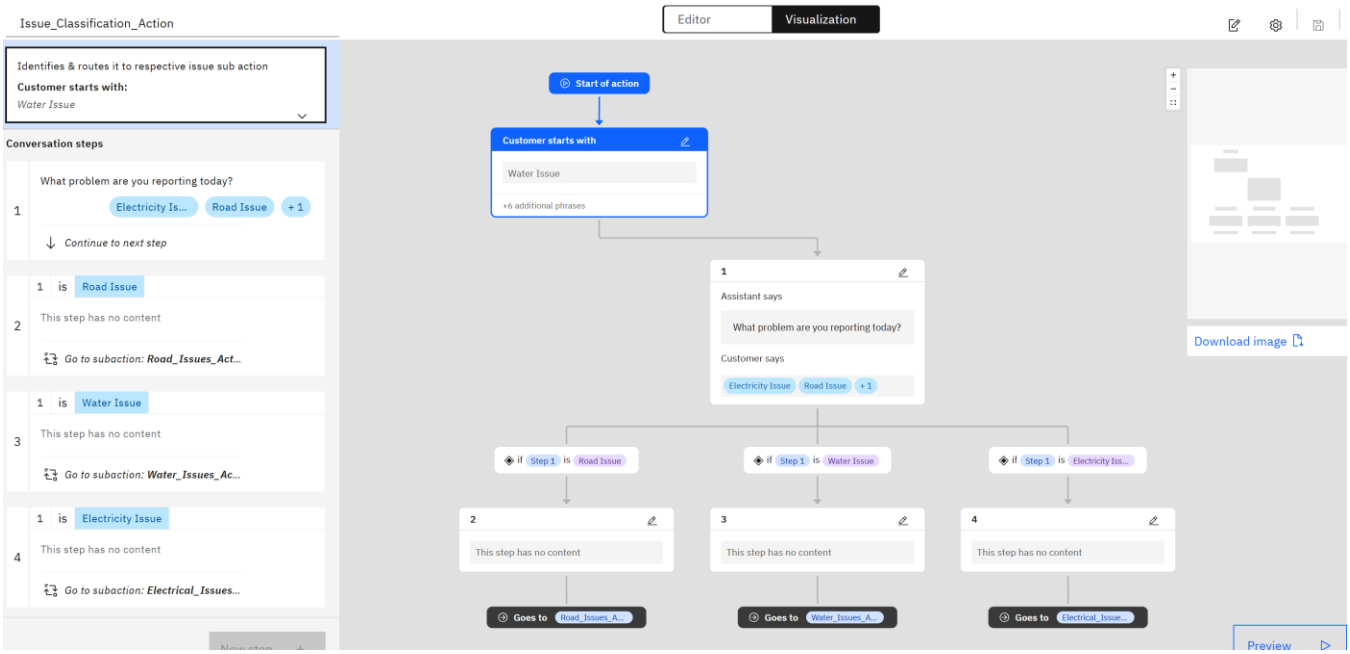
Agent Coordination Without Code

All agent logic, coordination, and data handoff are built entirely inside **Watsonx Orchestrate’s Assistant Builder**, without Python, APIs, or external tools. Variables are passed between agents, and conditions route the logic. This no-code orchestration demonstrates the platform’s native power to implement agentic AI principles effectively.

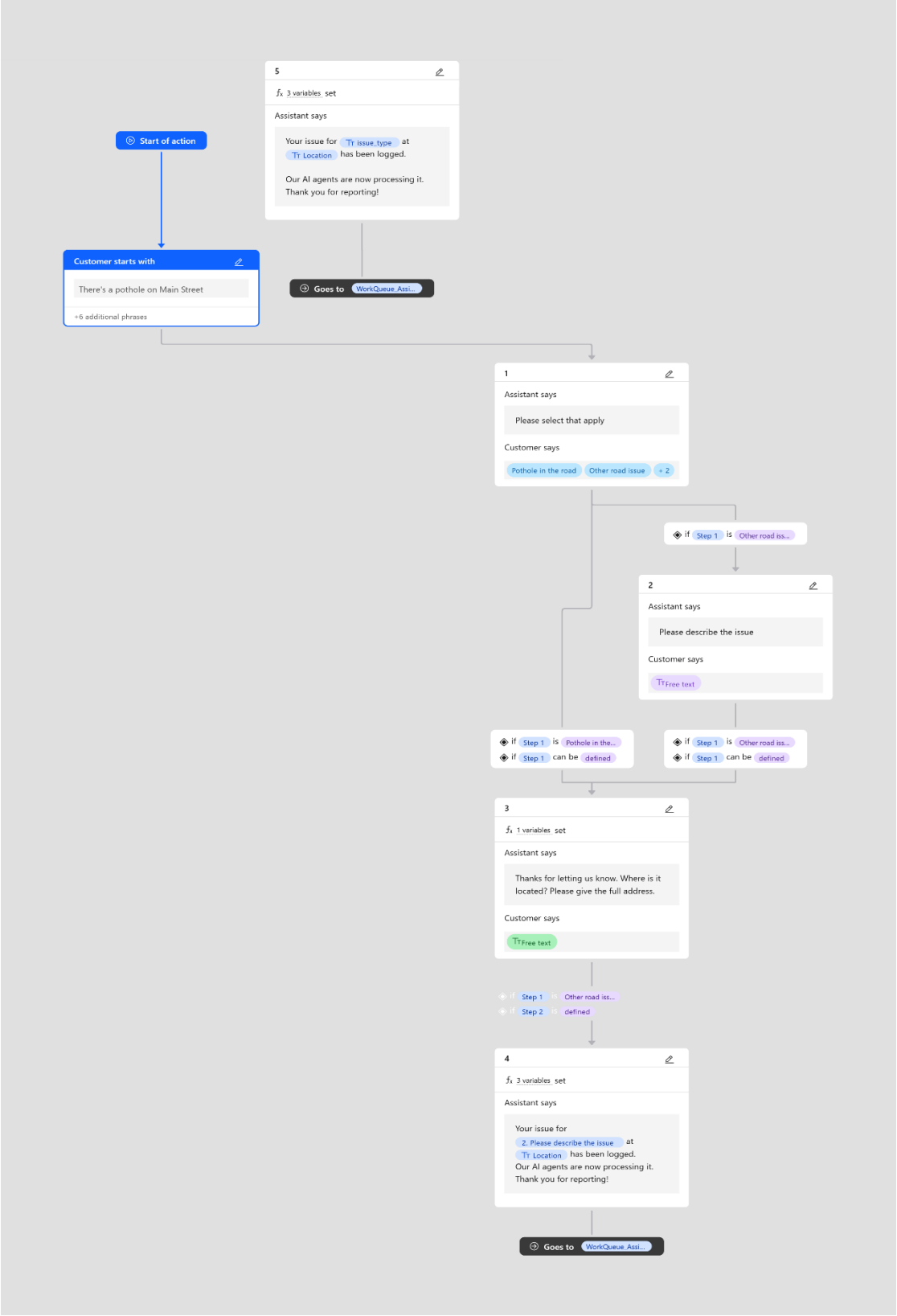
Screenshots of workflows designed :



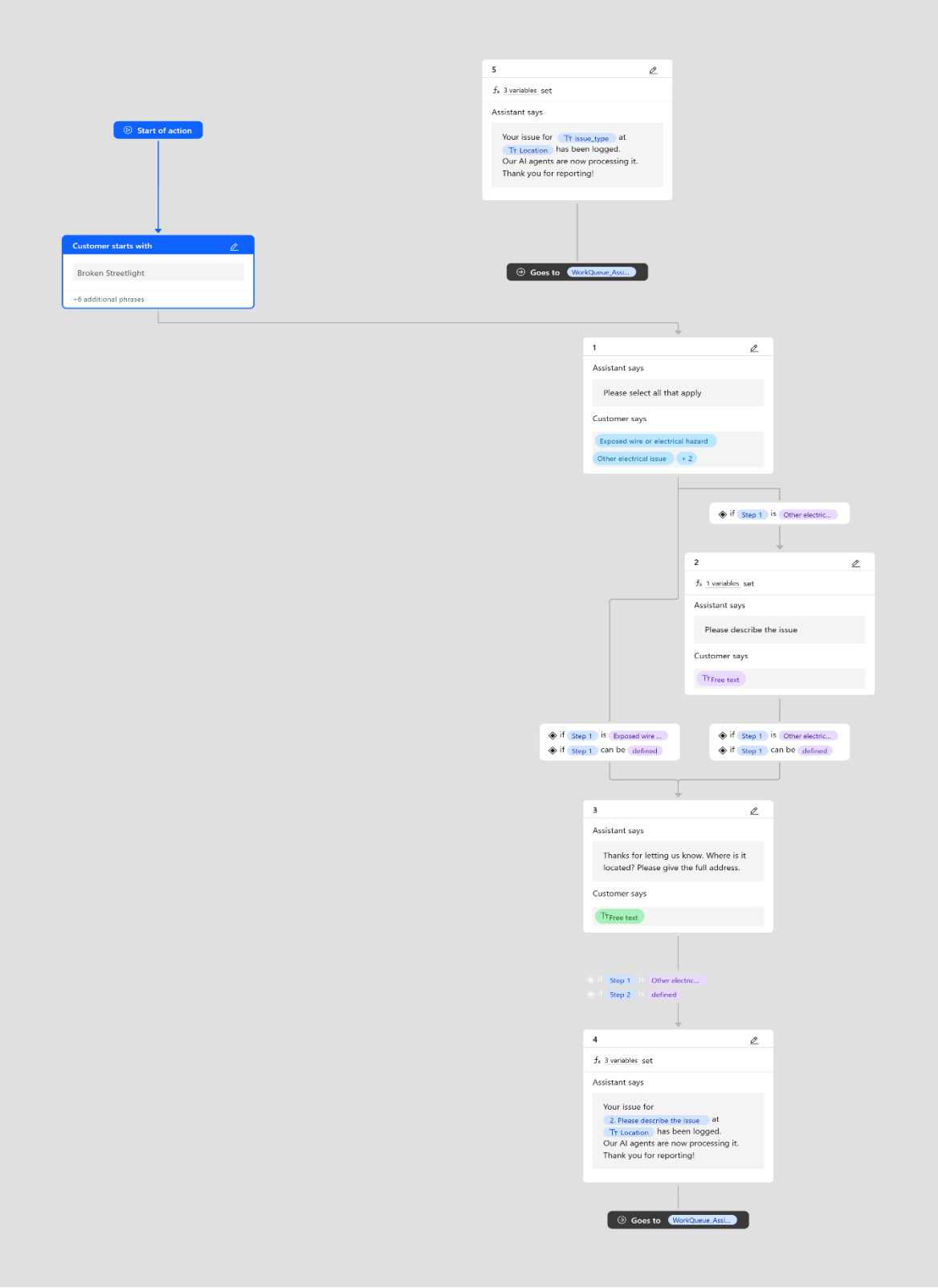
Greet_Action_Initialization



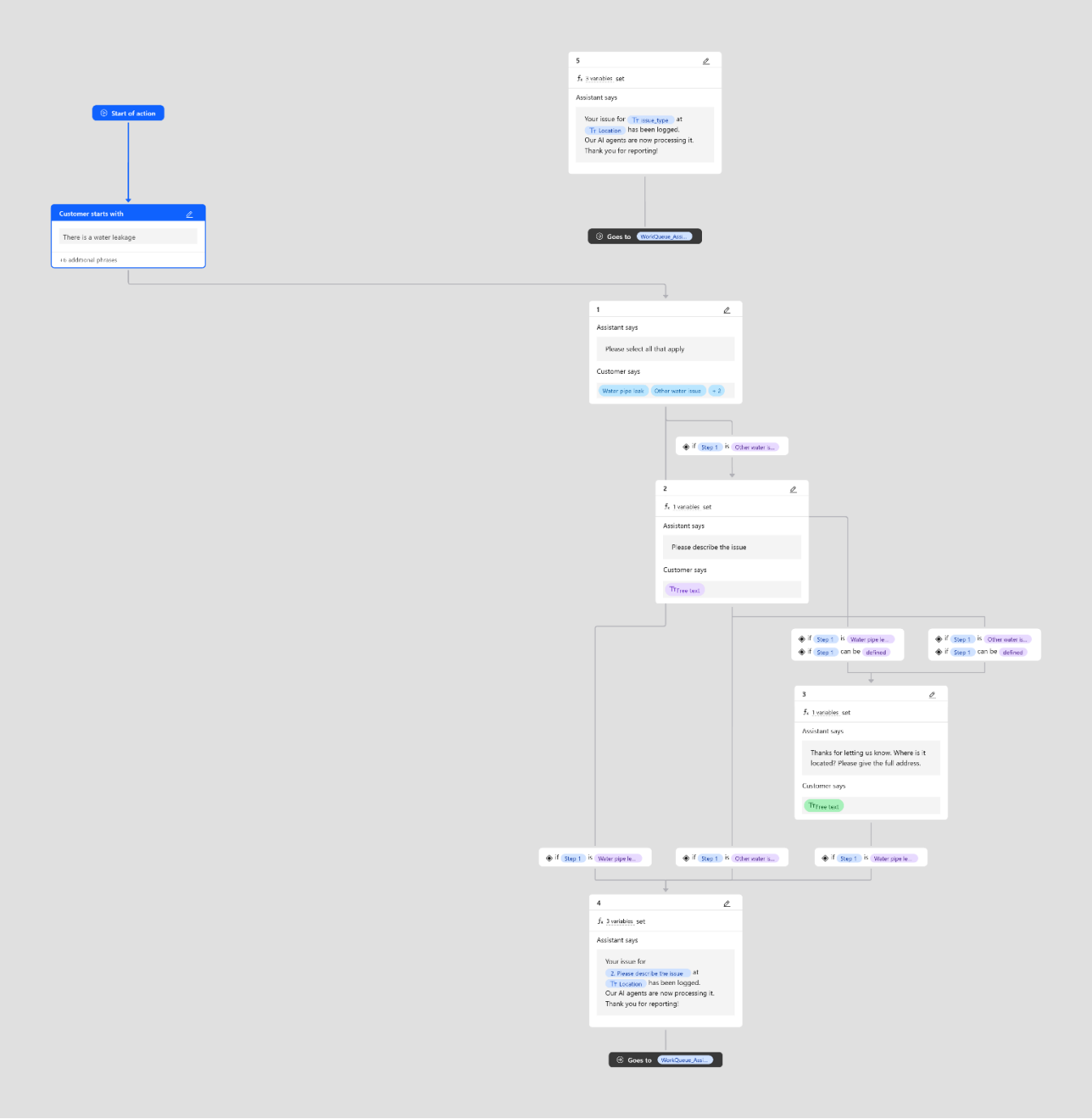
Issue Classification_Action



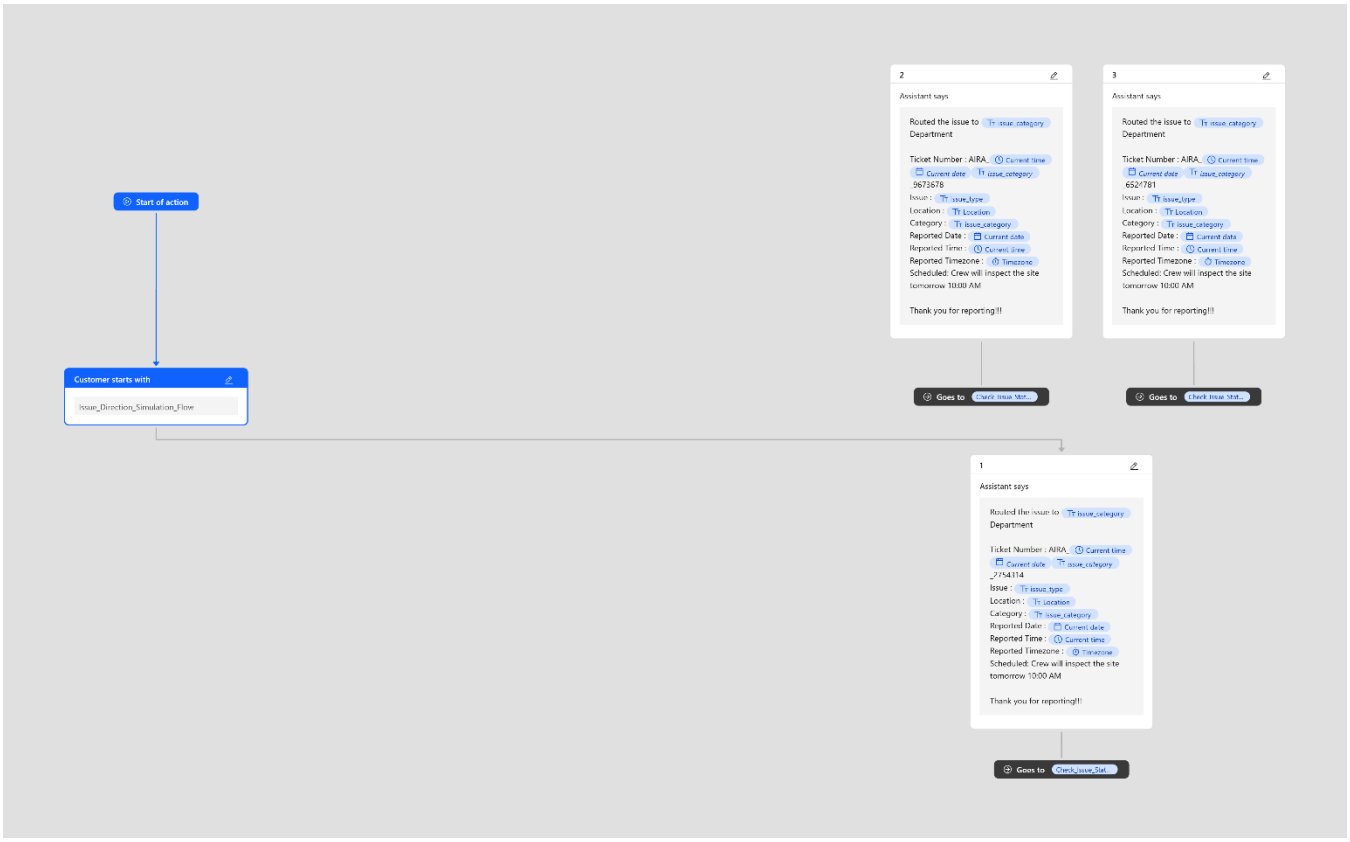
Road Issues Action



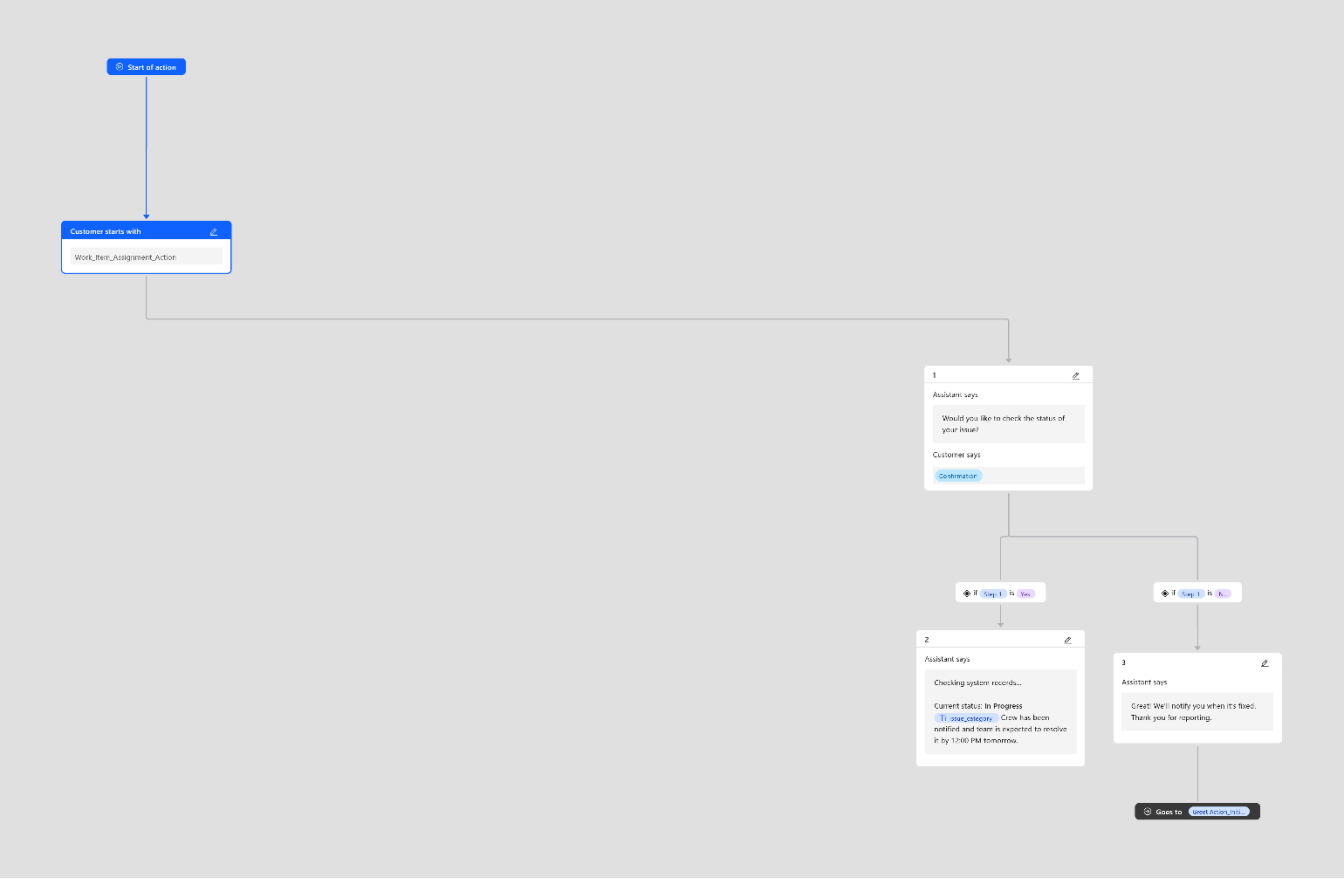
Electrical Issues Action



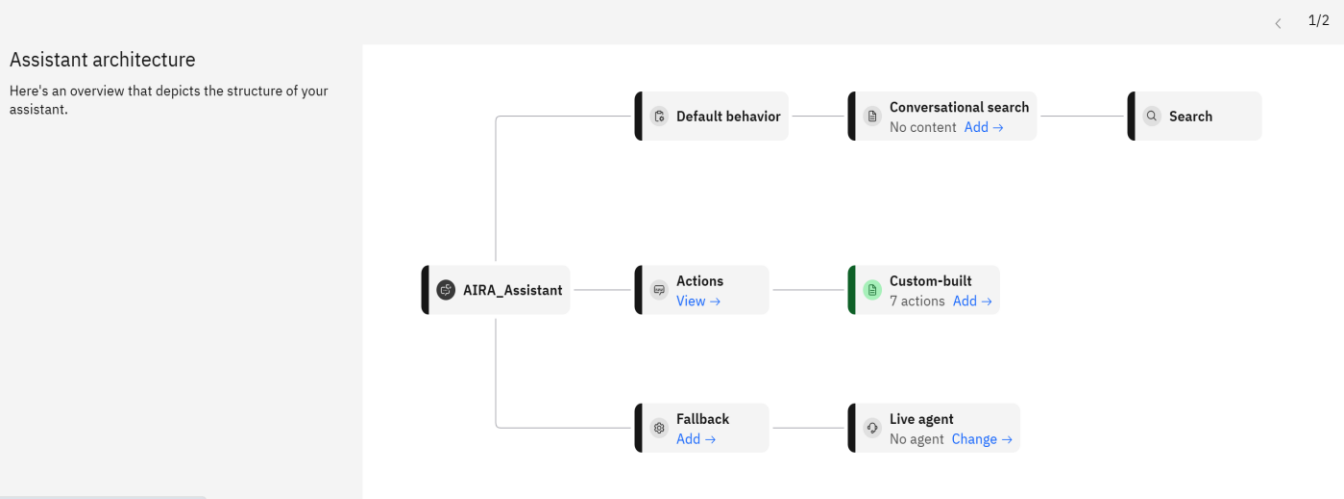
Water Issues Action



WorkQueue_Assignment_Action

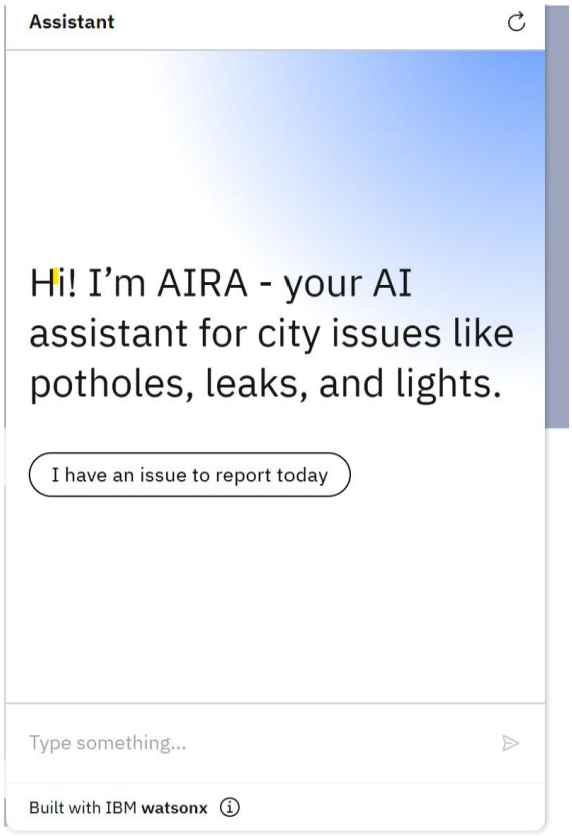


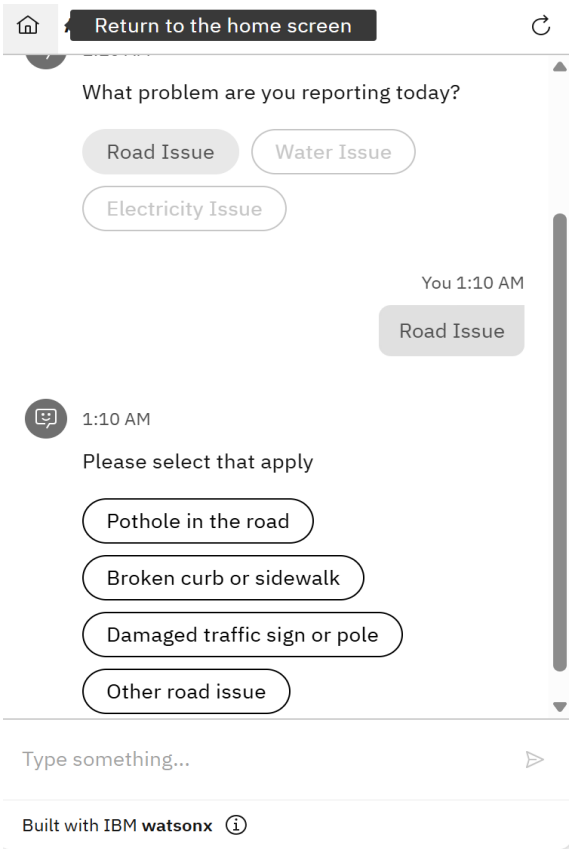
Check_Issue_Status_Action

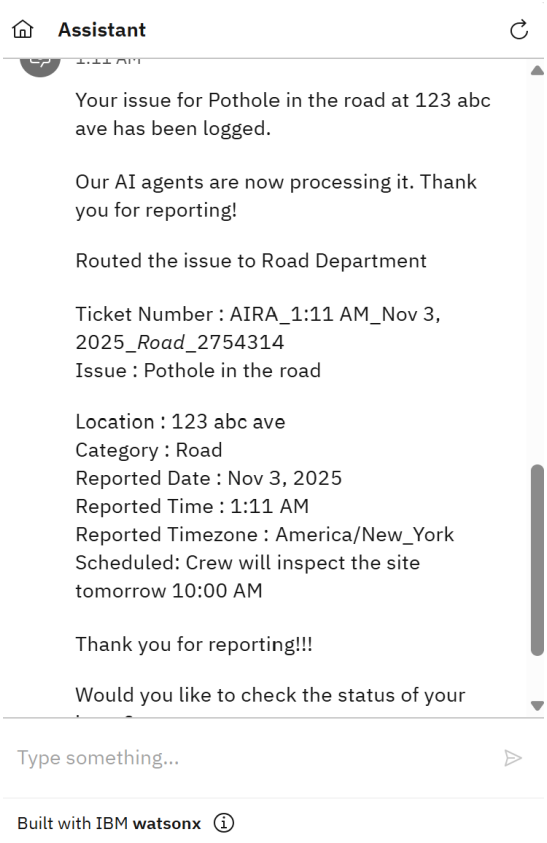


Assistant Architecture

Output Screenshots :







Future Plans & Full Integration

Due to current platform access limitations, we could not enable Skill-based actions (e.g., real-time email, calendar, database updates) or AI-based actions (e.g., dynamic classification via watsonx.ai or Foundation Models). Once these features are unlocked, we plan to:

- Replace the simulated classifier with a live NLP model using Watsonx.ai
- Integrate ticket creation with actual databases or city CRM tools via APIs
- Send real notifications through email or Slack using Orchestrate Skills
- Track live ticket statuses with backend logging and display a dashboard for city officials

We also envision extending AIRA into a multilingual assistant that can adapt to different regions or be trained for specific infrastructure domains. The modular agent-based architecture allows us to scale and evolve the system without changing its core logic.

This solution addresses **Track 2: Industry, Innovation & Infrastructure** by leveraging a fully orchestrated, agentic AI workflow, aligned with the principles of **Track 1: Agent Mode Activated** under Call for Code 2025.