Road Repair Management System - Use Cases

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Submit Repair Request (UC-001)

Attribute	Details
ID	UC-001
Title	Submit Repair Request
Description	This use case allows a citizen (resident) to submit a repair request for damaged roads. The request includes location details, issue description, and optional photo attachments. The system processes the request and notifies the relevant authorities.
Primary Actor	Citizen (Resident)
Secondary Actor	System
Preconditions	- The citizen must be logged into the system. - The system must be online and available.
Postconditions	- The repair request is logged in the system. - The supervisor receives a notification about the new request. - The citizen receives a confirmation message.
Dependency	None
Generalization	None

Attribute	Details
Main Success Scenario	1. The citizen logs into the system. 2. The citizen selects the "Submit Repair Request" option. 3. The system prompts the citizen to enter the location and issue details. 4. The system validates the input. 5. The citizen optionally attaches photos or documents. 6. The citizen provides contact information. 7. The citizen submits the request. 8. The system assigns a unique request ID and stores the request. 9. The system notifies the supervisor of the new repair request. 10. The citizen receives a confirmation message.
Extensions or Alternate Flow	- **[Step 4] Invalid Input** → The system prompts the citizen to correct errors. - **[Step 5] No Attachment Provided** → The system allows submission without photos. - **[Step 7] Connection Lost** → The system saves a draft and allows resubmission later.
Frequency of Use	Daily, based on citizen complaints.
Business Rules	- A citizen can only submit one request per location per day. - The system must validate that the location exists in the city database.
Assumptions	- The citizen has internet access. - The system has an updated city map database.
Notes	- Future versions may allow voice-based submission.
Status	Active
Owner	Admin
Priority	High

Track Repair Status (UC-002)

Attribute	Details
ID	UC-002
Title	Track Repair Status
Description	This use case allows a citizen (resident) to track the progress of a submitted repair request. The citizen can check the status, estimated time for completion, and receive notifications on updates. Additionally, they can download a report on completed repairs.
Primary Actor	Citizen (Resident)

Attribute	Details
Secondary Actor	System
Preconditions	- The citizen must be logged into the system. - A repair request must have been submitted.
Postconditions	- The citizen can view the current status of the repair request. - The system provides real-time updates. - The citizen can receive notifications about progress.
Dependency	None
Generalization	None
Main Success Scenario	1. The citizen logs into the system. 2. The citizen selects "Track Repair Progress." 3. The system retrieves all repair requests submitted by the citizen. 4. The citizen selects a specific repair request. 5. The system displays the current status and estimated completion time. 6. The citizen subscribes to notifications for status updates. 7. The system sends real-time notifications as updates occur. 8. The citizen downloads a repair report if needed.
Extensions or Alternate Flow	- **[Step 3] No Previous Requests Found** → The system informs the citizen that no requests exist. - **[Step 5] Repair Completed** → The system allows the citizen to download a completion report. - **[Step 7] Notifications Disabled** → The citizen can manually check for updates instead.
Frequency of Use	Daily, depending on repair requests.
Business Rules	- Citizens can only track repairs they have submitted. - Notifications are only sent during system working hours.
Assumptions	- The system has real-time update capabilities. - The citizen has enabled notifications on their device.
Notes	- Future versions may include SMS notifications.
Status	Active
Owner	Admin
Priority	High

Login & View Repair Requests (UC-003)

Attribute	Details

Attribute	Details
ID	UC-003
Title	Login & View Repair Requests
Description	This use case allows a supervisor to log into the system and view submitted repair requests. The system retrieves and displays repair requests based on filters such as date, priority, and location.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must have valid login credentials. - The system must be online and accessible.
Postconditions	- The supervisor gains access to pending repair requests. - The system retrieves and displays repair requests with relevant details.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor navigates to the login page. 2. The supervisor enters valid credentials and submits them. 3. The system verifies the credentials. 4. If authentication is successful, the system grants access. 5. The supervisor selects the "View Repair Requests" option. 6. The system retrieves and displays all submitted repair requests. 7. The supervisor filters requests by date, priority, or location. 8. The supervisor selects a request to view details.
Extensions or Alternate Flow	- **[Step 3] Invalid Credentials** → The system denies access and prompts for re-entry. - **[Step 6] No Repair Requests Available** → The system displays a message stating no pending requests. - **[Step 7] Filter Not Applied** → The system displays all available requests.
Frequency of Use	Multiple times per day, depending on incoming repair requests.
Business Rules	- Only authorized supervisors can access repair requests. - Repair requests must be sorted by priority by default.
Assumptions	- The supervisor has an active account. - The system can handle concurrent logins.
Notes	- Future versions may allow voice-based search for repair requests.
Status	Active
Owner	Admin

Attribute	Details
Priority	High

Update Repair Progress (UC-004)

Attribute	Details
ID	UC-004
Title	Update Repair Progress
Description	This use case allows a supervisor to update the progress of a repair request. The system updates the status, estimated completion time, and any relevant notes for the request.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system. - A repair request must exist in the system.
Postconditions	- The repair request status is updated. - The estimated completion time is updated. - Any relevant notes are added or updated.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Update Repair Progress." 3. The system retrieves the repair request. 4. The supervisor updates the status, estimated completion time, and notes. 5. The system updates the repair request with the new information.
Extensions or Alternate Flow	- **[Step 3] No Repair Request Found** → The system informs the supervisor that no request exists.
Frequency of Use	Multiple times per day, depending on repair requests.
Business Rules	- Only authorized supervisors can update repair requests.
Assumptions	- The system maintains accurate and real-time repair records. - The supervisor has permission to access all repair requests.
Notes	- Future versions may include automated notifications for updates.
Status	Active
Owner	Admin

Attribute	Details
Priority	High

Generate Work Orders (UC-005)

Attribute	Details
ID	UC-005
Title	Generate Work Orders
Description	This use case allows a supervisor to generate work orders for repair tasks. The system assigns tasks to workers based on the availability and skills of the workers.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system. - A repair request must exist in the system.
Postconditions	- Work orders are generated for the repair tasks. - Tasks are assigned to workers based on availability and skills.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Generate Work Orders." 3. The system retrieves the repair request. 4. The system assigns tasks to workers based on availability and skills. 5. The system generates work orders for the assigned tasks.
Extensions or Alternate Flow	- **[Step 3] No Repair Request Found** → The system informs the supervisor that no request exists.
Frequency of Use	Multiple times per day, depending on incoming repair requests.
Business Rules	- Only authorized supervisors can generate work orders.
Assumptions	- The system maintains accurate and real-time repair records. - The supervisor has permission to access all repair requests.
Notes	- Future versions may include automated notifications for assigned tasks.
Status	Active
Owner	Admin
Priority	High

Schedule Maintenance (UC-006)

Attribute	Details
ID	UC-006
Title	Schedule Maintenance
Description	This use case allows a supervisor to schedule maintenance tasks for road repairs. The system assigns tasks to workers based on the availability and skills of the workers.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system. - A repair request must exist in the system.
Postconditions	- Maintenance tasks are scheduled for the repair. - Tasks are assigned to workers based on availability and skills.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Schedule Maintenance." 3. The system retrieves the repair request. 4. The system assigns tasks to workers based on availability and skills. 5. The system schedules maintenance tasks for the repair.
Extensions or Alternate Flow	- **[Step 3] No Repair Request Found** → The system informs the supervisor that no request exists.
Frequency of Use	Multiple times per day, depending on incoming repair requests.
Business Rules	- Only authorized supervisors can schedule maintenance tasks.
Assumptions	- The system maintains accurate and real-time repair records. - The supervisor has permission to access all repair requests.
Notes	- Future versions may include automated notifications for scheduled tasks.
Status	Active
Owner	Admin
Priority	High

Manage Resources (UC-007)

Attribute	Details
ID	UC-007
Title	Manage Resources
Description	This use case allows a supervisor to manage resources allocated to road repairs. The system retrieves and displays resource allocation details and allows for adjustments.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system.
Postconditions	- Resource allocation details are retrieved and displayed. - Resource allocation adjustments are made.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Manage Resources." 3. The system retrieves resource allocation details. 4. The supervisor views the details. 5. The supervisor adjusts resource allocation if needed.
Extensions or Alternate Flow	- **[Step 3] No Resource Data Found** → The system informs the supervisor that no resource data exists.
Frequency of Use	Multiple times per day, depending on resource management needs.
Business Rules	- Only authorized supervisors can manage resources.
Assumptions	- The system maintains accurate and real-time resource allocation records. - The supervisor has permission to access all resource allocation data.
Notes	- Future versions may include automated notifications for resource adjustments.
Status	Active
Owner	Admin
Priority	High

Review Repair History (UC-008)

Attribute	Details
ID	UC-008
Title	Review Repair History

Attribute	Details
Description	This use case allows a supervisor to review the history of a specific repair request. The system retrieves and displays all relevant details about the repair request.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system. - A repair request must exist in the system.
Postconditions	- The repair request history is retrieved and displayed.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Review Repair History." 3. The system retrieves the repair request history. 4. The supervisor views the history details.
Extensions or Alternate Flow	- **[Step 3] No History Found** → The system informs the supervisor that no history exists for the request.
Frequency of Use	Multiple times per day, depending on review needs.
Business Rules	- Only authorized supervisors can review repair history.
Assumptions	- The system maintains accurate and real-time repair records. - The supervisor has permission to access all repair history.
Notes	- Future versions may include automated notifications for new history entries.
Status	Active
Owner	Admin
Priority	Medium

Set Task Priority (UC-009)

Attribute	Details
ID	UC-009
Title	Set Task Priority
Description	This use case allows a supervisor to set the priority of a repair task. The system updates the priority of the task and notifies the relevant worker.
Primary Actor	Supervisor

Attribute	Details
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system. - A repair task must exist in the system.
Postconditions	- The repair task priority is updated. - The relevant worker is notified of the priority change.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Set Task Priority." 3. The system retrieves the repair task. 4. The supervisor sets the task priority. 5. The system updates the task priority. 6. The system notifies the relevant worker of the priority change.
Extensions or Alternate Flow	- **[Step 3] No Task Found** → The system informs the supervisor that no task exists.
Frequency of Use	Multiple times per day, depending on task management needs.
Business Rules	- Only authorized supervisors can set task priorities.
Assumptions	- The system maintains accurate and real-time task records. - The supervisor has permission to access all tasks.
Notes	- Future versions may include automated notifications for priority changes.
Status	Active
Owner	Admin
Priority	High

Generate Cost Reports (UC-010)

Attribute	Details
ID	UC-010
Title	Generate Cost Reports
Description	This use case allows a supervisor to generate a cost report for a specific repair request. The system retrieves and formats the report based on selected parameters.
Primary Actor	Supervisor

Attribute	Details
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system. - A repair request must exist in the system.
Postconditions	- The system generates and displays the requested cost report. - The report is formatted for review and export.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Generate Cost Reports." 3. The system retrieves the repair request. 4. The system retrieves relevant cost data. 5. The system generates a formatted cost report. 6. The supervisor views the report on the system dashboard. 7. The system provides an option to export the report as PDF/CSV.
Extensions or Alternate Flow	- **[Step 3] No Data Available** → The system informs the supervisor that no data matches the selected parameters. - **[Step 6] Report Formatting Error** → The system logs the error and provides an alternative format. - **[Step 7] Export Failure** → The system retries exporting or provides a download link later.
Frequency of Use	Multiple times per day, depending on cost reporting needs.
Business Rules	- Only authorized supervisors can generate cost reports. - Reports must be generated within a maximum of 30 seconds.
Assumptions	- The system maintains accurate and real-time repair records. - The supervisor has permission to access all cost data.
Notes	- Future versions may include graphical visualizations and trend analysis.
Status	Active
Owner	Admin
Priority	Medium

Monitor Worker Performance (UC-011)

Attribute	Details
ID	UC-011

Attribute	Details
Title	Monitor Worker Performance
Description	This use case allows a supervisor to monitor the performance of a worker. The system retrieves and displays performance metrics and allows for adjustments.
Primary Actor	Supervisor
Secondary Actor	System
Preconditions	- The supervisor must be logged into the system.
Postconditions	- Worker performance metrics are retrieved and displayed. - Performance adjustments are made.
Dependency	None
Generalization	None
Main Success Scenario	1. The supervisor logs into the system. 2. The supervisor selects "Monitor Worker Performance." 3. The system retrieves worker performance metrics. 4. The supervisor views the metrics. 5. The supervisor adjusts performance if needed.
Extensions or Alternate Flow	- **[Step 3] No Performance Data Found** → The system informs the supervisor that no performance data exists.
Frequency of Use	Multiple times per day, depending on performance monitoring needs.
Business Rules	- Only authorized supervisors can monitor worker performance.
Assumptions	- The system maintains accurate and real-time performance records. - The supervisor has permission to access all performance data.
Notes	- Future versions may include automated notifications for performance adjustments.
Status	Active
Owner	Admin
Priority	Medium

Request Statistical Reports (UC-012)

Attribute	Details
ID	UC-012
Title	Request Statistical Reports

Attribute	Details
Description	This use case allows the mayor to request statistical reports on road repairs, including the number of completed, pending, and high-priority tasks. The system generates and formats reports based on selected parameters.
Primary Actor	Mayor
Secondary Actor	System
Preconditions	- The mayor must be logged into the system. - The system must have up-to-date repair data.
Postconditions	- The system generates and displays the requested statistical report. - The report is formatted for review and export.
Dependency	None
Generalization	None
Main Success Scenario	1. The mayor logs into the system. 2. The mayor navigates to "Request Statistical Reports." 3. The system prompts the mayor to select report parameters (e.g., date range, priority, region). 4. The mayor confirms the selection. 5. The system retrieves relevant repair data. 6. The system generates a formatted statistical report. 7. The mayor views the report on the system dashboard. 8. The system provides an option to export the report as PDF/CSV.
Extensions or Alternate Flow	- **[Step 3] No Data Available** → The system informs the mayor that no data matches the selected parameters. - **[Step 6] Report Formatting Error** → The system logs the error and provides an alternative format. - **[Step 7] Export Failure** → The system retries exporting or provides a download link later.
Frequency of Use	Weekly or as needed for review meetings.
Business Rules	- Only authorized users (mayor and senior officials) can request reports. - Reports must be generated within a maximum of 30 seconds.
Assumptions	- The system maintains accurate and real-time repair records. - The mayor has permission to access all statistical data.
Notes	- Future versions may include graphical visualizations and trend analysis.
Status	Active
Owner	Admin
Priority	High