

Connected Corridors Grant Matcher - Grants.gov Integration

Overview

The Connected Corridors Grant Matcher is a comprehensive grant funding discovery system that combines expert-curated recommendations with live Grants.gov API data, specifically tailored for connected corridors and intelligent transportation system (ITS) projects.

Features

1. Connected Corridors Strategy Matcher

Analyzes your project against connected corridors strategy priorities:

- **Strategy Alignment Scoring** - Measures how well your project aligns with connected corridors initiatives
- **Smart Recommendations** - AI-powered suggestions for strengthening your application
- **Focus Area Analysis** - Identifies key areas: V2X, Connected Vehicles, Traffic Management, Multi-State Coordination, Data Sharing

Strategic Priorities:

- V2X Infrastructure Deployment
- Connected Vehicle Systems Integration
- Real-time Traffic Management
- Multi-State/Regional Coordination
- Data Sharing & Interoperability Standards

2. Live Grants.gov Integration

Real-time access to current federal funding opportunities:

- **Live NOFO Search** - Direct integration with Grants.gov API (no authentication required)
- **Auto-Matching** - Automatically scores opportunities against your project description
- **Direct Links** - One-click access to Grants.gov application pages
- **Status Tracking** - See which grants are open, forecasted, or closing soon

API Endpoints:

- `/api/grants/search-live` - Search current opportunities
- `/api/grants/opportunity/:id` - Fetch detailed NOFO information
- `/api/grants/connected-corridors-match` - Smart matcher combining curated + live data

3. Deadline Monitoring

Proactive deadline tracking and alerts:

- **60-Day Forecast** - Monitor all upcoming deadlines
- **Critical Alerts** - Highlights grants closing within 14 days
- **Priority Levels:**
 -  **CRITICAL:** 0-14 days until close
 -  **HIGH:** 15-30 days until close

- o  **MEDIUM:** 31-60 days until close

API Endpoint:

- `/api/grants/monitor-deadlines` - Real-time deadline monitoring

4. Curated Grant Recommendations

Expert-selected grants with ITS/connected corridors focus:

Competitive Grants:

- **SMART Grant** - Connected vehicles, V2X, automation
- **ATCMTD** - Traffic management, signal optimization, V2I
- **RAISE** - Multimodal, safety, sustainability
- **INFRA** - Freight corridors, major infrastructure
- **PROTECT** - Resilience, emergency management
- **FMCSA IT-D** - Commercial vehicle data, truck parking

Block Grants:

- **HSIP** - Highway Safety Improvement Program
- **CMAQ** - Congestion Mitigation and Air Quality
- **STBG** - Surface Transportation Block Grant
- **TAP** - Transportation Alternatives
- **FTA 5339** - Bus and Bus Facilities

Usage

Step 1: Describe Your Project

Navigate to **Grant Applications** → **Connected Corridors Matcher** tab:

Project Description: "Deploy V2X infrastructure and connected vehicle systems along I-80 corridor with multi-state coordination between Iowa, Nebraska, and Illinois"

Primary Corridor: I-80

Requested Amount: \$8,500,000

Geographic Scope: Multi-State

Step 2: Get Smart Matches

Click "**Find Matching Grants**" to receive:

1. Strategy Alignment Score (0-100%)

- o Based on connected corridors priorities
- o V2X deployment potential
- o Multi-state coordination
- o ITS infrastructure readiness

2. Strategic Recommendations

- o Priority-ranked action items
- o Specific grant program alignments

- Data sharing requirements
- Partnership opportunities

3. Top Grant Matches

- Expert-curated programs (SMART, ATCMTD, etc.)
- Live Grants.gov opportunities
- Block grant options

Step 3: Monitor Live Opportunities

Switch to "Live Opportunities" tab:

- Real-time search of Grants.gov
- Filtered for transportation/ITS keywords
- Sorted by match score
- Direct application links

Step 4: Track Deadlines

Switch to "Deadline Alerts" tab:

- See all upcoming deadlines (60-day window)
- Critical alerts highlighted at top
- Auto-refreshes to show latest data
- Direct links to apply

API Integration Details

Backend Endpoints

Search Live Grants

```
POST /api/grants/search-live
{
  "keyword": "intelligent transportation systems",
  "fundingAgency": "DOT",
  "status": "forecasted,posted",
  "eligibility": "State governments"
}
```

Response:

```
{
  "success": true,
  "opportunities": [
    {
      "opportunityId": "12345",
      "title": "FY2025 SMART Grant Program",
      "agency": "USDOT",
      "closeDate": "2025-06-30",
      "daysUntilClose": 45,
      "closingSoon": false,
      "awardCeiling": 15000000,
```

```
        "status": "posted",
        "grantsGovLink": "https://www.grants.gov/search-results-detail/12345"
    }
],
"totalResults": 12,
"fetchedAt": "2025-12-27T10:30:00Z"
}
```

Connected Corridors Match

```
POST /api/grants/connected-corridors-match
{
  "description": "V2X deployment along I-80",
  "primaryCorridor": "I-80",
  "requestedAmount": 8500000,
  "geographicScope": "multi-state",
  "stateKey": "IA"
}
```

Response:

```
{
  "success": true,
  "curatedGrants": [...],
  "liveOpportunities": [...],
  "blockGrants": [...],
  "connectedCorridorsStrategy": {
    "alignmentScore": 85,
    "recommendations": [
      {
        "area": "V2X Infrastructure",
        "priority": "HIGH",
        "suggestion": "SMART and ATCMTD grants prioritize V2X deployment..."
      }
    ],
    "keyFocusAreas": [
      "V2X Infrastructure Deployment",
      "Connected Vehicle Systems",
      "Real-time Traffic Management",
      "Multi-State Coordination",
      "Data Sharing & Interoperability"
    ]
  },
  "context": {
    "hasITSEquipment": true,
    "hasV2XGaps": true,
    "hasTruckParkingData": true,
    "isFreightCorridor": true
  }
}
```

Monitor Deadlines

```
GET /api/grants/monitor-deadlines?stateKey=IA&daysAhead=60
```

Response:

```
{
  "success": true,
  "deadlineAlerts": {
    "critical": [
      {
        "opportunityId": "67890",
        "title": "RAISE Grant FY2025",
        "agency": "USDOT",
        "closeDate": "2025-01-30",
        "daysUntilClose": 3,
        "urgency": "CRITICAL",
        "grantsGovLink": "https://www.grants.gov/..."
      }
    ],
    "high": [...],
    "medium": [...],
    "total": 8
  },
  "monitoredDays": 60
}
```

Matching Algorithm

Connected Corridors Match Score

The system calculates a 0-100% match score based on:

Technology Deployment (25 points)

- Keywords: connected, V2X, ITS, smart, automated
- Presence of existing ITS infrastructure

Corridor Focus (20 points)

- Keywords: corridor, interstate, highway, I-XX
- Freight corridor identification

Regional Coordination (20 points)

- Multi-state projects
- Regional partnerships
- Interstate collaboration

V2X Infrastructure (20 points)

- V2X deployment potential
- RSU gaps identified

- Connected vehicle systems

Data Sharing (15 points)

- Interoperability plans
- Data sharing agreements
- Standards compliance

Live Opportunity Match Score

For Grants.gov opportunities:

Connected Corridors Keywords (15 pts each)

- Connected vehicles
- Intelligent transportation
- V2X / V2I
- Smart corridors
- ITS deployment

Technology Focus (20 points)

- ITS, smart, automated, connected

V2X Specific (25 points)

- V2X, V2I, connected vehicle, vehicle-infrastructure

Corridor/Infrastructure (15 points)

- Corridor, highway, interstate, infrastructure

Funding Alignment (10 points)

- Award range matches request

Status Bonus (15 points)

- Currently accepting applications

Benefits

For State DOTs

1. Time Savings

- No manual Grants.gov searches
- Auto-filtered for relevance
- Direct application links

2. Strategic Alignment

- Ensures projects fit connected corridors strategy
- Identifies gaps and opportunities
- Prioritizes high-value grants

3. Never Miss Deadlines

- Proactive monitoring
- Critical alerts for urgent applications

- o 60-day planning window

4. Data-Driven Decisions

- o Uses actual ITS inventory
- o Incorporates corridor data
- o Leverages existing infrastructure

For Grant Writers

1. Smart Recommendations

- o Explains why grants match
- o Highlights key requirements
- o Shows typical award ranges

2. Live Status

- o Real-time NOFO availability
- o Current deadlines
- o Award amounts

3. Multi-Source

- o Expert-curated programs
- o Live Grants.gov data
- o Block grant options

Testing

Test Live Search

```
curl -X POST http://localhost:3001/api/grants/search-live \
-H "Content-Type: application/json" \
-d '{
  "keyword": "intelligent transportation systems",
  "fundingAgency": "DOT",
  "status": "posted"
}'
```

Test Connected Corridors Match

```
curl -X POST http://localhost:3001/api/grants/connected-corridors-match \
-H "Content-Type: application/json" \
-d '{
  "description": "Deploy V2X RSUs and connected vehicle systems along I-35
corridor",
  "primaryCorridor": "I-35",
  "requestedAmount": 8000000,
  "geographicScope": "multi-state",
  "stateKey": "IA"
}'
```

Test Deadline Monitoring

```
curl http://localhost:3001/api/grants/monitor-deadlines?daysAhead=60
```

Technical Architecture

Frontend Components

ConnectedCorridorsGrantMatcher.jsx

- Main component with 3 tabs
- Smart Matcher view
- Live Opportunities view
- Deadline Alerts view
- Real-time API integration
- Responsive design with dark mode

Integration Points

- Added to GrantApplications.jsx as new tab
- Shares user context and state
- Uses existing api service layer

Backend Infrastructure

New Endpoints (backend_proxy_server.js)

- /api/grants/search-live - Grants.gov search
- /api/grants/opportunity/:id - Opportunity details
- /api/grants/connected-corridors-match - Smart matcher
- /api/grants/monitor-deadlines - Deadline tracking

Enhanced Recommender (utils/grant-recommender.js)

- Existing scoring algorithms
- Extended with V2X focus
- Truck parking data integration
- Freight corridor detection

Grants.gov API

Base URL: <https://api.grants.gov/v1/api>

Endpoints Used:

- POST /search2 - Search opportunities
- POST /fetchOpportunity - Get opportunity details

Authentication: None required for these endpoints

Rate Limits: Not specified by Grants.gov API

Future Enhancements

Planned Features

1. Email Alerts

- Daily/weekly deadline digests
- New opportunity notifications
- Custom keyword alerts

2. Saved Searches

- Save project criteria
- Auto-run searches weekly
- Compare changes over time

3. Application Tracking

- Link matched grants to applications
- Track submission status
- Award notifications

4. Enhanced Scoring

- Machine learning for match quality
- Historical award data
- Success rate predictions

5. Collaboration Features

- Share opportunities with team
- Multi-state project coordination
- Partner matching

6. Analytics Dashboard

- Funding trends over time
- Success rates by program
- Budget allocation insights

Support

For issues or questions:

- Check the API logs for Grants.gov connectivity
- Verify project description includes connected corridors keywords
- Ensure state context is available (user.stateKey)
- Test endpoints directly with curl/Postman

References

- [Grants.gov API Guide](#)
- [USDOT SMART Grant Program](#)
- [Connected Corridors Coalition](#)
- [ARC-IT 10.0 Standards](#)