BIM-READY ROADWAY DESIGN SOLUTION
Plateia is a professional, BIM-ready, 3D road design and reconstruction software solution. It provides the commands and tools to support the entire design process, from preliminary to detailed design, from the initial input of survey data to complex 3D road models with analysis tools, to documentation and publishing features.

Using its flexible, dynamic data model, Plateia supports BIM (Building Information Modeling) workflows and processes. Carefully designed UI and workflows are consistent with the road design engineering practice.

This makes Plateia fast-to-learn and easy-to-use.

**FIELDS OF USE**

01 HIGHWAYS, LOCAL AND URBAN ROADS, FOREST ROADS, MOUNTAIN ROADS, ...
02 INTERSECTIONS AND ROUNDABOUTS
03 INTERCHANGES
04 BRIDGES, VIADUCTS, OVERPASSES, AND UNDERPASSES
05 DETOURS AND BYPASSES
06 TUNNEL DESIGN
07 URBAN ROADS AND AREAS
08 URBAN PLANNING
09 BICYCLE PATHS
10 SPECIAL ROADS: RACING TRACKS, DIRT TRACKS, ...
11 EARTHWORKS: QUARRIES, OPEN MINE PITS, DUMP AREAS, EARTH BARRIERS, ...
12 REHABILITATION OF LANDSLIDES
13 SKI-SLOPES DESIGN, ...

**REFERENCES**
CGS Labs solutions provide extensive BIM data support not limited to CAD platforms in use. 3D roadway, railway or river channel models are generated as detailed 3D solid objects with extended BIM metadata attached to objects, or as multiple surfaces for use with computer guided machines etc..

Plateia offers capable Property Manager for adding and changing 3D solids property data, which enables COBie (Construction Operations Building Information Exchange) compatibility.

Plateia 3D models and attribute data can be exported to IFC files. IFC export format is regularly updated according to buildingSMART International specifications.

Clash detection tool enables designer to search for possible collisions among selected 3D solid objects within the drawing itself thus saving the time to export models and create clash analysis in third party applications outside CAD environment.

FEATURES

DIGITAL TERRAIN MODELING

The Surface creation tool is included in CGS Labs software to produce detailed Digital Terrain Model (DTM) based on various surveys or other input data: total station data files, points, break lines, blocks, etc. This offers the possibility to use Plateia on plain AutoCAD or BricsCAD. Civil 3D surfaces are automatically supported by Plateia.

SUPPORT FOR BIM AND IFC

URBAN & SITE DESIGN
GRADING

Creation of complex slopes with multiple conditions in cut or fill gives users the capability to cover various design scenarios and geometry requirements for all kind of road projects, from simple forest road design to complex intersection geometry design. Furthermore, creating ponds, parking areas, platforms, road, rail tracks, river channels, and other features is easier and faster with CGS Labs grading functionality.

GEOSPATIAL DATA

Plateia provides a wide range of advanced alignment, profile geometry design, and editing tools. They include P(V)I design, floating and fixed elements design and alignment design created from the existing entities. Ultimately creating a best-fit alignment based on existing road centerline or road edge survey data. Superelevation calculation features a comprehensive definition and editing tool.

Plateia supports several superelevations definitions and pivot point options according to various European and AASHTO roadway design standards. A number of alignment labels according to different country standards, reports, and data export options offer the flexibility to cover a wide range of user requirements.

* Google maps and OpenStreetMap data is supported!

POWERFUL GEOMETRY DESIGN TOOLS

Plateia provides unique Raster Imagery and Elevation data* (Earth Surface data) insertion options within the CAD drawing to help visualize areas where the projects are located. Combining geospatial data with BIM infrastructural or architectural models offers attractive visualization and analysis capabilities. Worldwide geospatial data* for roads, railways and buildings availability is another added value, which enables users to re-create existing built environments in areas of interest. You can Export your 3D designs to Google Earth directly and create fast and accurate visualisations in projects location.

* Google maps and OpenStreetMap data is supported!
INTERSECTIONS AND ROUNDABOUTS
Automated intersection and roundabout design based on road geometry defined by alignment, profile and super-elevations. The 3D Intersections function automatically adjusts secondary road profile and super elevation parameters with corresponding user defined curb returns. Automated intersection design results in detailed 3D intersection geometry for X or T shaped intersection types. Use the grading/surface mode with various parameters to customize 3D intersection geometry.

3D SURFACE AND 3D SOLID MODEL
Roadway 3D models in Plateia are generated as 3D surfaces or 3D solid models. 3D roadway surface model is built automatically from 3D road edges and terrain model, or it can be built with the grading function. 3D solid model is created based on cross-section areas, where materials and volumes can be defined as extended data. With 3D solids, we can also build tunnels, bridges and similar objects. Solid objects can be aligned with arcs and transition curves. All solid models, including extended data, can be imported into Autodesk Infraworks, Navisworks and can be used in various BIM workflows.

DETAILED CROSS SECTION DESIGN AND EDITING
Plateia provides capabilities for designing and editing roadway cross sections in a detailed way with almost no geometry limitations to the final project design. Adding multiple roadways to a single cross section gives you control over the geometry between the roads and other infrastructure objects your project requires, and lets you define these areas with great accuracy and detail.
Plateia calculates material quantity take-off and features a QTO data export tool with custom defined Pay Item (Bill of materials) options. It gives users the possibility to link material defined in the drawing with a material database in cost estimate software, thus supporting digital data transfer and fast cost recalculation when project changes arise.

The Visibility and Stop sight distance road geometry tool provides graphical visibility distance analysis required to safely stop a vehicle traveling at design speed. This facilitates planning to avoid collisions with any other immobile objects obstructing the driving path.

Mass haul diagram presents a graphical view of the material moved in the proposed design site. Mass haul diagrams help designers and contractors understand where gross material movements occur and compare the economies of alternative designs.

The road reconstruction / rehabilitation function offers powerful regression analysis tools for best-fit alignment and profile creation based on existing road centerline or road edge surveyed data.

Existing road superelevation comparison with new superelevation calculation and editing enhancements provide designers the needed tools to tackle demanding geometrical restrictions.

Integrated road reconstruction & rehabilitation tools for calculation of material removal and / or resurfacing material quantities result in new 3D road geometry data linked with QTO information.
Plateia includes Autosign - professional CGS Labs software for planning 3D traffic signs and road markings in CAD environment.

Autosign brings extensive collections of country-specific traffic sign libraries, road markings, traffic lights, and other street furniture elements.

It generates detailed layouts, reports, 3D (BIM) objects, and realistic visualizations to assist engineers and design professionals.

Created 3D solid objects can be easily exchanged with Navisworks or InfraWorks or exported to IFC standard exchange format.

Plateia includes Autopath - professional CGS Labs software for 3D/BIM swept path analysis and vehicle turning simulations.

Using Autopath you can easily and quickly simulate vehicle maneuvers and check transportability of all types of road design projects: on roads, intersections, roundabouts, hairpin turns, underpasses, overpasses...

With advanced tools for swept path analysis and animation, it not only accelerates the engineering design process but also enables you to quickly check for possible conflicts and inconsistencies of the vehicle path with other vehicles or with built objects, explore alternative design options, and check safety and compliance with standards.

Autopath comes with a number or country-specific reference vehicle libraries defined by national guidelines and an extended collection of real vehicles covering aircraft, bus, cranes, emergency (intervention) vehicles, trucks, agricultural machinery and more.
GENRAL FEATURES

LANGUAGES AND COUNTRIFICATION - DESIGN STANDARDS

Plateia is available in several languages and supports country specific road design guidelines, drawing layouts, traffic signs and other symbols, vehicles, etc.

Supported country/language versions:

- English (Int. and USA)
- Austria
- Bulgaria
- Croatia
- Czech Republic
- Germany
- Hungary
- Macedonia
- Poland
- Romania
- Serbia
- Slovenia

DYNAMIC DATA MODEL

Plateia stores all design data inside .dwg data file for quick geometry updates and data exchange within CGS Labs software solutions and Autodesk software. IFC, LandXML, OKSTRA, REB and AutoCAD Civil 3D data exchange interfaces are available. Dynamic updates to all geometry changes or design parameters are supported within single or multiple drawings with separated layout/profile and cross sections data.

PLATEIA SUPPORTS LARGE PROJECTS

Plateia easily handles large projects with very long alignments and thousands of cross-sections within seconds. Projects are neither limited in size nor is the performance critically affected while working on large-scale projects, including extra-long and multiple alignments, profiles, and cross section views. Cross sections can provide a high level of details with on-demand synchronization options, great processing speed, and consistent data.

COLLABORATION CAPABILITIES

Large roadway projects can be efficiently divided among multiple team members, who can then work simultaneously on the project. Projects can be stored in a single drawing or split into several drawings, separating layout, profile, and cross sections.

TESTIMONIALS

“The ease of use and intuitive interface of Plateia software provided us with additional fully functional road designers in less than 2 weeks of training. That helped us present a complete project decision with highway lanes and redesigned interchanges, without delays in design schedule.”

- Kolyo Chervenkov, EngConsultProject Ltd. (Bulgaria)
Plateia runs on top of 2013–2020 versions of Autodesk AutoCAD and Civil 3D as well as BricsCAD Pro and Platinum V17 - V19. Only 64-bit versions are supported!

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CGS Labs is an innovative software company with 30 years of experience developing solutions for the design, construction and maintenance of transportation infrastructure.

We closely follow BIM trends and incorporate local design regulations and standards in our software. Our applications promote Open BIM approach and standardized IFC data exchange.

**01 SOLUTIONS FOR INFRASTRUCTURE DESIGN**

CGS Labs develops specialized software solutions for the designing of roads (Plateia, Autopath, Autosign), railways (Ferrovia), channel and river engineering works (Aquaterra) and power lines design (Electra).

**02 SOFTWARE DEVELOPMENT SERVICES**

CGS Labs offers software development services that address specific problems in civil engineering design. Our resume includes development of functionalities for big international software vendors like Autodesk and Symetri.

**03 TECHNICAL SUPPORT**

Complete customer satisfaction is very important to us. If any problems should arise while using CGS Labs software, our team of experts is there to assist you, so your design process runs without any interferences or delays. Besides that we also provide services for some more challenging engineering tasks e.g. complex custom vehicle definition for Autopath.

**04 BIM CONSULTING**

CGS Labs provides consulting services to companies that are implementing BIM technologies into processes of planning, construction and maintenance of architectural and infrastructural facilities.

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